Revision of the *Nyctemera evergista* group (= subgenus *Deilemera* HÜBNER) (Lepidoptera: Arctiidae, Arctiinae, Nyctemerini)

Rob DE VOS

Rob DE VOS, Zoölogisch Museum (sectie Entomologie), Plantage Middenlaan 64, NL-1018 DH Amsterdam, The Netherlands; e-mail: rvos@science.uva.nl

Abstract: The *evergista* group of the arctiid genus *Nyctemera* HÜBNER, [1820] is revised and listed in a concise checklist. The species group is confined to Indo-Australia, represented by seven species. One new species, *N.* ***swinhoei*** **n. sp.** (holotype [HT] ♂ in Zoölogisch Museum Amsterdam [ZMA]), and three new subspecies, *N. muelleri* ***mentawaiensis*** **n. ssp.** (HT ♂ in Natural History Museum, London [BMNH]), *N. maculata* ***variamacula*** **n. ssp.** (HT ♂ in ZMA) and *N. evergista* ***bismarckiana*** **n. ssp.** (HT ♂ in BMNH), are described. Four taxa are found to be new synonyms: *Nyctemera mülleri enganica* ROEPKE, 1957 is synonymized with *N. muelleri eddela* (SWINHOE, 1904); *N. aeres vandenberghi* ROEPKE, 1957 and *Deilemera leuctra* SWINHOE, 1903 are synonymized with *N. gerra* (SWINHOE, 1903); and *Leptosoma aeres* DE BOISDUVAL, 1832 is synonymized partly with *N. evergista evergista* STOLL, 1782 and partly with *N. evergista agagles* DE BOISDUVAL, 1832. The **lectotypes** of the following taxa are **designated** (with depository in brackets): *Leptosoma mülleri* SNELLEN VAN VOLLENHOVEN, 1863 (RMNH); *Deilemera gerra* SWINHOE, 1903 (BMNH); *Deilemera leuctra* SWINHOE, 1903 (BMNH); *Leptosoma noviespunctatum* SNELLEN VAN VOLLENHOVEN 1863 (RMNH). The *evergista* species group formerly was treated as a separate genus, *Deilemera* HÜBNER, [1820], by many authors. *Deilemera* is now dealt with as a synonym of *Nyctemera*, and can at most be regarded as a subgenus. Also the status of *Arctata* ROEPKE, 1949, is revised as a subgenus of *Nyctemera* (**stat. rev.**). The habitus of all (sub-)species is depicted, and an identification key is given in an Appendix. The genitalia of all species are figured and a distribution map is provided.

Revision der Artengruppe von *Nyctemera evergista* (= Subgenus *Deilemera* HÜBNER) (Lepidoptera: Arctiidae, Nyctemerinae)

Zusammenfassung: Die *evergista*-Artengruppe der Arctiidengattung *Nyctemera* HÜBNER, [1820] wird revidiert und in einer knappen Checkliste dargestellt. Diese Artengruppe kommt in der Indoaustralischen Region vor und besteht aus 7 Arten. Eine neue Art, *N.* ***swinhoei*** **n. sp.** (Holotypus [HT] ♂ in Zoölogisch Museum Amsterdam [ZMA]), und drei neue Unterarten, *N. muelleri* ***mentawaiensis*** **n. ssp.** (HT ♂ in Natural History Museum, London [BMNH]), *N. maculata* ***variamacula*** **n. ssp.** (HT ♂ in ZMA) und *N. evergista* ***bismarckiana*** **n. ssp.** (HT ♂ in BMNH), werden beschrieben. Vier Taxa werden als neue Synonyme erkannt: *Nyctemera mülleri enganica* ROEPKE, 1957 wird synonymisiert mit *N. muelleri eddela* (SWINHOE, 1904); *N. aeres vandenberghi* ROEPKE, 1957 und *Deilemera leuctra* SWINHOE, 1903 werden synonymisiert mit *N. gerra* (SWINHOE, 1903); und *Leptosoma aeres* DE BOISDUVAL, 1832 wird teilweise synonymisiert mit *N. evergista evergista* STOLL, 1782 sowie teilweise mit *N. evergista agagles* DE BOISDUVAL, 1832. Die **Lectotypen** der folgenden Taxa werden **designiert** (mit dem Hinterlegungsort des Typenmaterials): *Leptosoma mülleri* SNELLEN VAN VOLLENHOVEN, 1863 (RMNH); *Deilemera gerra* SWINHOE, 1903 (BMNH); *Deilemera leuctra* SWINHOE, 1903 (BMNH); *Leptosoma noviespunctatum* SNELLEN VAN VOLLENHOVEN 1863 (RMNH). Die *evergista*-Gruppe wurde von vielen Autoren zeitweilig als separate Gattung *Deilemera* HÜBNER, [1820] interpretiert. *Deilemera* wird hier als Synonym, das bestenfalls als Untergattung verwendet werden kann, von *Nyctemera* angesehen. Auch *Arctata* ROEPKE, 1949, wird als Subgenus von *Nyctemera* zurückgestuft (**stat. rev.**). Der Habitus aller Arten und Unterarten wird farbig abgebildet, und ein Bestimmungsschlüssel der Arten wird als Anhang abgedruckt. Die Genitalarmaturen aller Arten werden in Abbildungen dargestellt, und eine Verbreitungskarte wird gezeigt.

Introduction

The *evergista* group is one of the most remarkable and characteristic species groups in the genus *Nyctemera* HÜBNER, [1820]. The sexual dimorphism is striking by the peculiarly shaped fore- and hindwings of the ♂♂, while the ♀♀ have quite normally shaped wings. The *evergista* group consists of seven species, exclusively distributed in Indo-Australia, from Southeast China to Indonesia and from Malaysia to the Bismarck Archipelago.

Its taxonomic place within the genus *Nyctemera* is rather debatable, since there are some characteristics which are different from other species groups in the genus, i.e. the wingshape and the position of the pheromone scales (on the hindwing tornus and dorsum of the ♂). In literature the species of the *evergista* group have often been placed under the genus *Deilemera* HÜBNER, [1820], with *evergista* STOLL, 1782, as the type species of this genus. Because of the different wingshape SWINHOE (1903) regarded *Deilemera* as to be of subgenus level. BRYK (1937) was one of the last authors who used the name *Deilemera* as (sub-)genus. ROEPKE (1949) treated *Deilemera* as a synonym of *Nyctemera,* just because he was not able to recognize distinct subgenera in *Nyctemera*. Considering the structure of the genitalia, the characteristic pattern of wings, thorax and abdomen and the wing venation, ROEPKE's decision seems justified. This was not followed by WATSON et al. (1980), but without argumentation. The correct position of the *evergista* group is, therefore, still somewhat uncertain. For now I consider the *evergista* group to form the subgenus *Deilemera* of the genus *Nyctemera*.

The *evergista* group is closely related to the *arctata* group (subgenus *Arctata* ROEPKE, 1949), which is demonstrated by the similar structures of the genitalia and wing pattern. The white pattern is concave between the veins, which is also seen in most species of the *arctata* group. Similarities in genital structures are the general shape of the valves, with a long process on the sacculus and a smaller one on the cucullus, and further the possession of one signum on the bursa copulatrix (except for one species), which is excavated, often oval-shaped or sometimes stretched out. Differences are present in the uncus, the shape of the aedeagus and the funnel-shape of the

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ostium. Arora & Chaudhury (1982) place the species *carissima* in the subgenus *Arctata,* but this is not correct. Their argumentation is even more confusing since they stated that the peculiar shape of the fore- and hindwings is only shown in one more species, *arctata* Walker, 1856, but this is nonsense. *Nyctemera arctata,* as all other species in the subgenus *Arctata,* has no modified wings, in contrast to the seven species of the subgenus *Deilemera.* The same goes for Singh & Pal Singh (1997) who even revalidated *Arctata* to generic level. *Arctata* can, just like *Deilemera,* at most be regarded as of subgeneric level within *Nyctemera* (**stat. rev.**).

The ♀♀ of some species in the *evergista* group are difficult to identify, but some reliable characters are given in the descriptions and the identification key. It is also very fortunate that the most similar species do not occur sympatrically, but obviously this may not give precedence in identification of the species.

Nothing is known about the biology of the species of the *evergista* group, except that they fly by day and at night and come to light (Holloway 1976).

Abbreviations

The material examined is housed in the following institutions and collections:

BMNH	The Natural History Museum, London, United Kingdom (formerly British Museum [Natural History])
BPBM	Bernice P. Bishop Museum, Honolulu, Hawaii, USA
CAH	Private collection Armin Hauenstein, Untermünkheim, Germany
CCGT	Private collection Colin G. Treadaway, Limbach-Wagenschwend, Germany (assigned to SMFL)
CHVM	Private collection Henk van Mastrigt, Jayapura (Irian Jaya), Indonesia
CKC	Private collection Karel Černý, Zirl, Austria
CMWM	Private Museum Thomas Witt, München, Germany (assigned to the Zoologische Staatssammlung, München)
MCSN	Museo Civico de Storia Naturale "Giacomo Doria", Genua, Italy
MNHU	Museum für Naturkunde der Humboldt-Universität, Berlin, Germany
OXUM	Hope Entomological Collections, University Museum, Oxford, United Kingdom
RMNH	Nationaal Natuurhistorisch Museum "Naturalis", Leiden, The Netherlands (formerly Rijksmuseum voor Natuurlijke Historie)
SMFL	Lepidoptera collection of Forschungsinstitut und Natur-Museum Senckenberg, Frankfurt am Main, Germany
WAU	Landbouwuniversteiteit, Wageningen, The Netherlands (formerly Landbouw Hogeschool)
ZMA	Zoölogisch Museum, Amsterdam, The Netherlands
ZFMK	Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, Germany
ZMUC	Zoologisk Museum, Copenhagen University, Denmark

Other abbreviations:

Fw.	forewing
Hw.	hindwing
Lfw.	length of forewing

Results

The species are treated in phylogenetic order, as far as yet known.

An identification key to the species is provided in an appendix at the end of this publication.

Concise checklist of the the *evergista* group (= *Nyctemera (Deilemera)*)

(For further details and synonymies see systematic part below.)

Nyctemera carissima (Swinhoe, 1891)

Nyctemera muelleri (Snellen van Vollenhoven, 1863)

- *Nyctemera muelleri muelleri* (Snellen van Vollenhoven, 1863)
- *Nyctemera muelleri eddela* (Swinhoe, 1904)
- *Nyctemera muelleri mentawaiensis* ssp. n.

Nyctemera gerra (Swinhoe, 1903)

Nyctemera maculata Walker, 1854

- *Nyctemera maculata maculata* Walker, 1854
- *Nyctemera maculata variamacula* ssp. n.

Nyctemera evergista (Stoll, 1782)

- *Nyctemera evergista evergista* (Stoll, 1782)
- *Nyctemera evergista agagles* (de Boisduval, 1832)
- *Nyctemera evergista uniplaga* (Swinhoe, 1903)
- *Nyctemera evergista bismackiana* ssp. n.

Nyctemera swinhoei sp. n.

Nyctemera luzonica (Swinhoe, 1917)

- *Nyctemera luzonica luzonica* (Swinhoe, 1917)
- *Nyctemera luzonica plesiastes* (West, 1932)

Systematic part

The distribution patterns of the species involved are documented in Map 1.

Nyctemera carissima (Swinhoe, 1891)

(Figs. 1–2, 41a–c, 48a–b)

Deilemera carissima Swinhoe (1891: 477); Swinhoe (1903: 64), Seitz (1915: 276), Matsumura (1930b: 61, 1931: 953), Bryk (1937: 89).

Dilemera [sic] *carissima:* Hampson (1894: 46), Swinhoe (1895: 18).

Nyctemera (Arctata) carissima: Arora & Chaudhury (1982: 9).

Arctata carissima: Singh & Pal Singh (1997: 5).

Deilemera mülleri: Pagenstecher (1901: 164) (nec Snellen van Vollenhoven, 1863) (in part).

Deilemera formosana Swinhoe (1908: 63); Seitz (1915: 276), Matsumura (1930b: 61), Bryk (1937: 90).

Deilemera carissima f. *formosana:* Matsumura (1931: 953).

Nyctemera formosana: Roepke (1957: 174), Chang (1989: 133), Yanagita (1999: 99).

Nyctemera varians: Matsumura (1931: 975) (nec Walker, 1854).

Material examined: 188 specimens in BMNH, CMWM, OXUM, RMNH, ZMA and MNHU.

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Types:

carissima: holotype (by monotypy) ♂, "Khasia Hills, Hamilton, Khasi Hills 95-224, *Deilemera carissima* Swinhoe, ♂, type", BMNH. Further there is a ♀ specimen in the collection of BMNH labelled with the familiar "red ring label" and with "Swinh type", suggesting that it is a type specimen, but this is not correct. Swinhoe (1891) only described the above mentioned ♂ specimen.

formosana: holotype (by monotypy) ♂, "Formosa, 1908-163, *Deilemera formosana* Swinhoe, ♂, type", BMNH. – "Neallotype" ♀, "Formosa, Le Hi Ku, vii. 1908, H. Sauter", RMNH, designated by Roepke (1957); this is no valid type specimen according to the present Code (ICZN 1999).

Distribution: *Nyctemera carissima* is a common species mainly distributed on the mainland of Southeast Asia and some adjacent islands. On the mainland it is known from Northeast India (Assam, Sikkim), Southeast China (Canton), Vietnam, Thailand and West Malaysia. Further it is known (North to South) from Iriomote Island (southwesternmost island of the Ryu Kyu Archipelago: Yanagita 1999), Taiwan, Hongkong and North Sumatra. It has been found at altitudes from sea level up to 3000 m.

General external characters: Head and thorax yolk yellow. Large black dot on frons, vertex, patagia and tegulae. Additionally thorax dorsally with three black dots in a row. Antennae black, bipectinate, in ♀ somewhat longer(!) bipectinate than in ♂, but with fewer cilia. Abdomen yolk yellow, with black segmental bands dorsally widely interrupted.

Wing characters of ♂: Lfw. 22–26 mm. Fw. with rounded dorsum and tornus, merging into rounded termen. Apex rounded but distinct. Costa for two-thirds straight, apically rounded.

Ground colour white with variable dark brown convex pattern. Wing base pale yellow. Basal field with large white patch and small white longitudinal patch at dorsum, which can be connected or separated from each other. White fascia broad, reaching costa, dorsally ending at fold between veins 1 and 2. An isolated round brown spot at the inner margin of the fascia. Sometimes fascia connected with basal white patch. Usually with tiny white stripe on vein 1 under fascia. Marginal band of Fw. dark brown, towards tornus reducing brown pattern by gradually breaking up into partly confluent brown patches. A white more or less square spot in apex. Marginal band interrupted between veins 3 and 4, leaving a round brown spot and a brown triangle. Large brown patches between veins 2 and 3 and veins 1 and 2 (sometimes touching), the last patch usually confluent with brown dorsal field.

Hw. rather narrow, with pronounced lobe at tornus, bearing pheromone scales. Ground colour white, with five to seven rounded dark brown marginal patches from apex to tornus lobe, sometimes confluent with one or several others. Lobe and dorsum fold cream-white. Underside identical to upperside, but markings less pronounced.

Wing characters of ♀: Lfw. 22–28 mm. Fw. with dorsum straight, but tornus rounded, merging into termen. Apex more angled than in ♂. Ground colour white with dark brown pattern, almost identical to ♂, but more reduced. Wing base yellow. Fascia sometimes reaching both, costa and dorsum or divided from dorsum by a narrow brown dorsal field. Dark brown marginal band even more broken up than in ♂♂. Apex with more or less square white patch. Brown marginal patches from vein 4 to tornus isolated, very variable in size and number, smaller towards tornus.

Hw. moderately broad, without lobe in tornus. Ground colour white, with six to eight rounded dark brown marginal patches from apex to tornus, usually isolated. Several spots can be reduced or being absent. Underside identical to upperside, but markings less pronounced.

♂ genitalia: Uncus long, claw shaped, with top slightly bent down. Valva very slender. Sacculus elongate with one long process, curved to dorsal side. Process of sacculus with short setae on ventral side, distally broadened and spatula-shaped. Cucullus with one long and slender cylindrical process with a few long setae. Aedeagus short and rather thick, distally widely open at one side. No cornuti. Coecum rather long, cylindrical.

♀ genitalia: Lamella antevaginalis simple, with ear-shaped folded lateral margin. Sinus vaginalis rather narrow, not intensively sclerotized. Ostium funnel shaped. Antrum with ribbon-like sclerotized "collar". Cervix bursae only slightly swollen, but hardly sclerotized. Bursa copulatrix with one signum, which is long and slender, spearhead-shaped.

Taxonomic remark: In the literature dealing with Taiwanese specimens *Nyctemera carissima* is persistently called *formosana* Swinhoe, 1908 and is even mentioned as endemic "species". *Nyctemera formosana* is, however, no more than a junior synonym or, at best, a subspecies of *carissima* Swinhoe, 1891. Taiwanese specimens are on the average smaller than those on the mainland and the brown wing pattern is sometimes more reduced, but this is probably no more than an ecological variation.

Nyctemera muelleri (Snellen van Vollenhoven, 1863)

Nyctemera muelleri muelleri (Snellen van Vollenhoven, 1863)

(Figs. 3–4, 42a–c, 49a–b)

Leptosoma mülleri Snellen van Vollenhoven (1863: 41); Butler (1880a: 673).

Deilemera mülleri: Swinhoe (1891: 477), Pagenstecher (1901: 164), Swinhoe (1903: 63), Seitz (1915: 275), van Eecke (1927: 221, 1928: 67), Bryk (1937: 91).

Deilemera muelleri: Kirby (1892: 424), Holloway (1976: 6, 1988: 72).

Deilemera evergista: Pagenstecher (1897: 441) (nec Stoll, 1782) (in part).

Nyctemera mülleri: Roepke (1957: 154).

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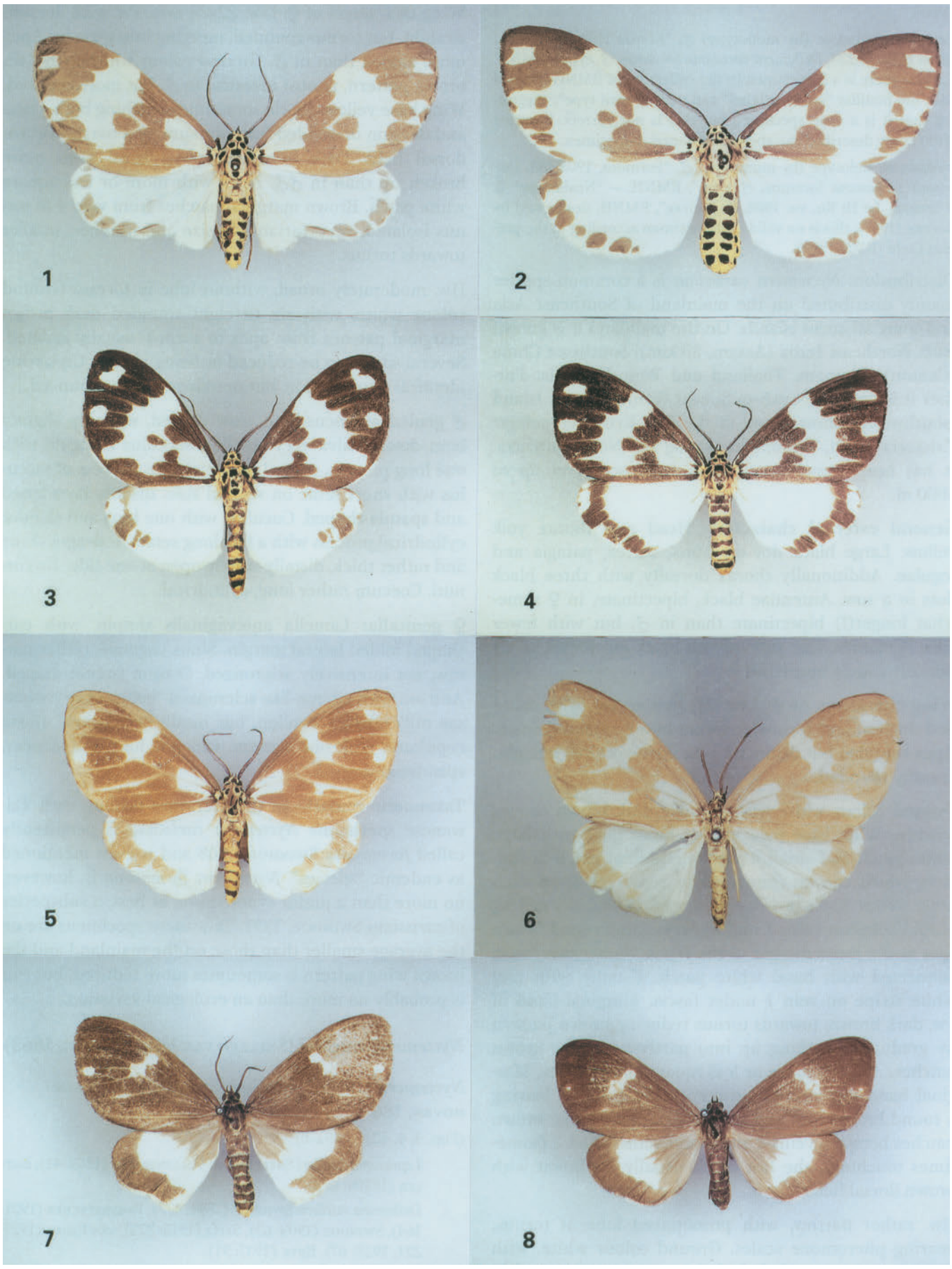

Plate 1, Fig. 1: *Nyctemera carissima* ♂. Darjeeling, India, CMWM. **Fig. 2:** *N. carissima* ♀. northern Vietnam, CMWM. **Fig. 3:** *N. muelleri muelleri* ♂. Sabah, Borneo, ZMA. **Fig. 4:** *N. muelleri muelleri* ♀. Sabah, Borneo, ZMA. **Fig. 5:** *N. muelleri eddela*, holotype ♂. Enggano Island (Southwest Sumatra), BMNH. **Fig. 6:** *N. muelleri eddela* f. *enganica*, holotype ♂. Enggano Island (Southwest Sumatra), RMNH. **Fig. 7:** *N. muelleri mentawaiensis* ssp. nov., holotype ♂. Sipora Island (West Sumatra), BMNH. **Fig. 8:** *N. muelleri mentawaiensis* ssp. nov., paratype ♀. Sipora Island (West Sumatra), BMNH.

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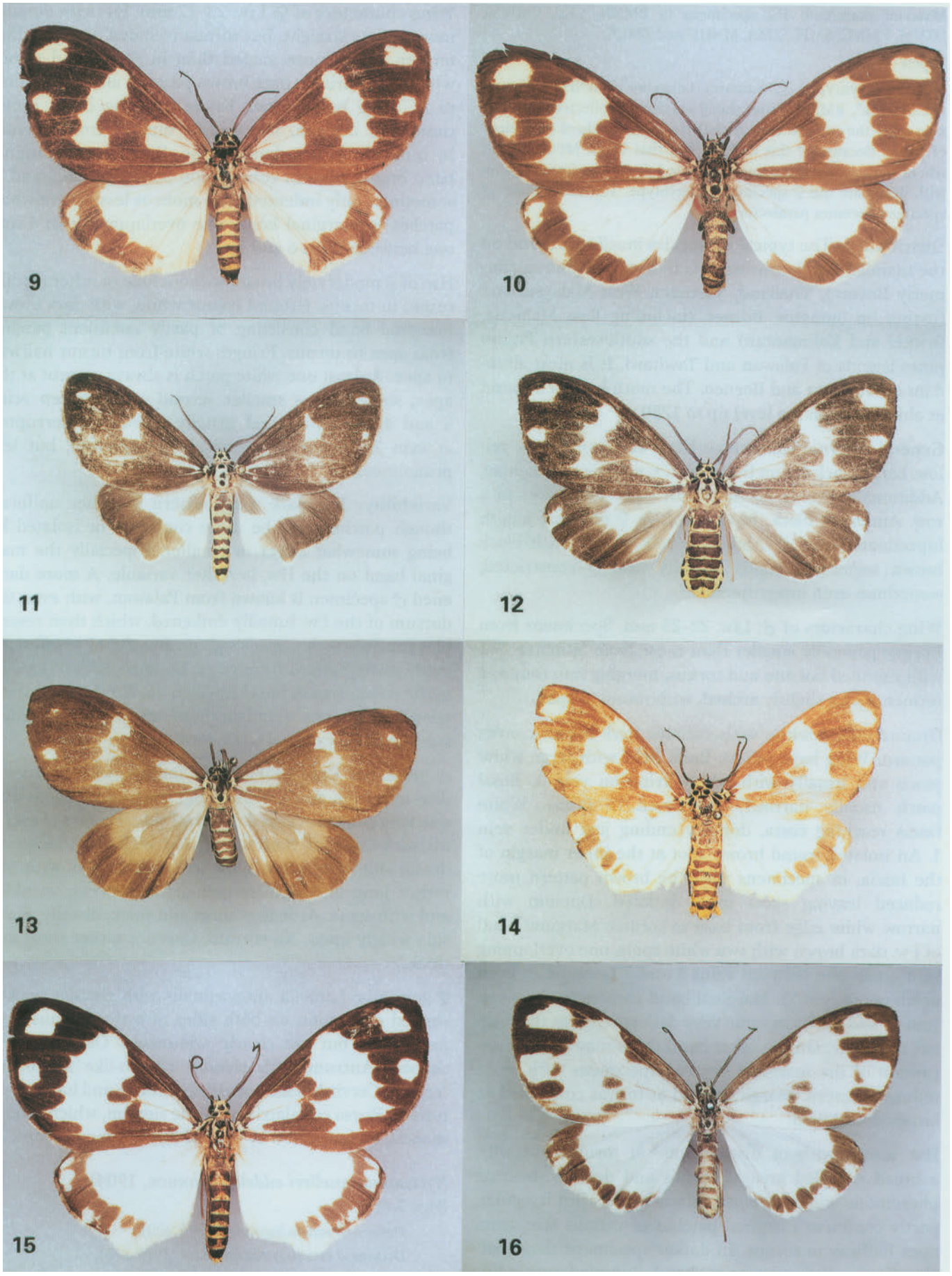

Plate 2, Fig. 9: *Nyctemera gerra*, lectotype ♂. Talaud Archipelago, BMNH. **Fig. 10:** *N. gerra*, paralectotype ♀. Talaud Archipelago, BMNH. **Fig. 11:** *N. gerra* ♂, dark form. Boroboro, East Sulawesi, ZMA. **Fig. 12:** *N. gerra* ♀, dark form. Luwuk, East Sulawesi, ZMA. **Fig. 13:** *N. gerra* ♀, dark form. Southwest Sulawesi, ZMA. **Fig. 14:** *N. gerra* ♂. Sula Sanana, ZMA. **Fig. 15:** *N. gerra* "*leuctra*", lectotype ♂. Sangihe Island, BMNH. **Fig. 16:** *N. gerra* f. *extrema* ♀. Sangihe Island, MNHU.

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Material examined: 152 specimens in BMNH, CKC, CMWM, OXUM, RMNH, SMFL, ZMA, MNHU and ZMUC.

Types:

muelleri: 2 syntypes: ♂, "Sumatra, Ludeking", RMNH; ♀, "Sumatra, Muller", RMNH. From the ♂ specimen, collected by Ludeking, only the two Fw. and the left Hw. remain, glued on a piece of paper. Because of this and the fact that Dr. S. Müller, after whom the species was named, collected the ♀ specimen, I herewith **designate** the ♀ specimen as **lectotype**. The unfortunate ♂ specimen becomes paralectotype.

Distribution: The typical subspecies *muelleri* is found on the mainland of Southeast Asia in South Myanmar (formerly Burma), Thailand, Vietnam, West Malaysia and further on Sumatra, Borneo (including East Malaysia, Brunei and Kalimantan) and the southwestern Philippines islands of Palawan and Tawitawi. It is most abundant on Sumatra and Borneo. The moth has been found at altitudes from sea level up to 1250 m.

General external characters: Head and thorax yolk yellow. Large black dot on frons, vertex, patagia and tegulae. Additionally thorax dorsally with three black dots in a row. Antennae black, bipectinate, in ♀ of equal length bipectinate as in ♂. Abdomen yolk yellow, with black brown segmental bands dorsally usually constricted, sometimes even interrupted.

Wing characters of ♂: Lfw. 22–25 mm. Specimens from Borneo generally smaller than those from Sumatra. Fw. with rounded dorsum and tornus, merging into rounded termen. Costa slightly arched, with rounded apex.

Ground colour white with variable dark brown convex pattern. Wing base yellow. Basal field with large white patch and usually with white stripe on vein 1. Basal patch usually narrowly connected to fascia. White fascia reaching costa, dorsally ending just under vein 1. An isolated round brown spot at the inner margin of the fascia, in specimens with the brown pattern more reduced leaving spots more isolated. Dorsum with narrow white edge from base to tornus. Marginal band of Fw. dark brown with two white spots, one overlapping vein 4 and one between veins 6 and 7 (sometimes even overlapping vein 7). Marginal band constricted between veins 1 and 2, but in some very dark specimens this may not be visible. On the other hand there may be an interruption of the marginal band in specimens with more reduced pattern. Marginal band at tornus connected to brown dorsal field.

Hw. broad, without distinct lobe at tornus, but with a broad rumpled area at tornus and dorsum, bearing pheromone scales. Ground colour white, with irregular, partly confluent marginal patches of various size, from apex halfway to tornus. In darker specimens these patches form a distinct marginal band. Rumpled area at tornus and dorsum paler or darker cream-white. Underside identical to upperside, but markings less pronounced. The pheromone scales on the underside of the Hw., however, are pale yellow.

Wing characters of ♀: Lfw. 23–27 mm. Fw. with dorsum more or less straight, but tornus rounded, merging into termen. Apex more angled than in ♂. Ground colour white with variable dark brown pattern, almost identical to ♂. Wing base yellow. Fascia reaching costa, sometimes also dorsum, but usually divided from dorsum by a narrow brown dorsal stripe. Dark brown marginal band broad, without constriction between vein 1 and 2, sometimes only indented. Two more or less square white patches in marginal band, one overlapping vein 4 and one between veins 6 and 7.

Hw. of ♀ moderately broad, without lobe or other modification in tornus. Ground colour white, with dark brown marginal band consisting of partly confluent patches from apex to tornus. Fringes white from tornus halfway to apex. At least one white patch is always present at the apex, sometimes a smaller second one between veins 3 and 4. Marginal band usually narrowly interrupted at vein 2. Underside identical to upperside, but less pronounced.

Variability: The dark wing pattern is rather uniform, though patches may be more confluent or isolated by being somewhat larger or smaller. Especially the marginal band on the Hw. is rather variable. A more darkened ♂ specimen is known from Palawan, with even the dorsum of the Fw. broadly darkened, which then resembles the Sulawesian species *gerra*. But ♂♂ of *muelleri* are easily distinguished from *gerra*, because *gerra* has a lobe in the tornal area of the Hw. which *muelleri* has not. Darkened ♀ specimens are much more difficult to distinguish from *gerra* by external characters only.

♂ genitalia: Uncus long, claw shaped, with sharp top distinctly bent down. Valva long, sacculus elongate with one long process, curved to dorsal side. Process of sacculus with angle at ventral side and with short setae, on dorsal side only some setae at top. Cucullus with one rather long and slender cylindrical process, wrinkled and with setae. Aedeagus short and thick, distally at one side widely open. No cornuti. Coecum rather short and thick.

♀ genitalia: Lamella antevaginalis with circular pocket-shaped excavation on both sides of ostium. Sinus vaginalis wide, but not clearly sclerotized. Ostium funnel shaped. Antrum with slender ribbon-like sclerotized "collar". Cervix bursae not visibly swollen and hardly sclerotized. Bursa copulatrix with one signum, which is boat-shaped, accompanied by several tiny chitinous drops.

Nyctemera muelleri eddela (Swinhoe, 1904)

(Figs. 5–6)

Deilemera eddela Swinhoe (1904: 420).
Deilemera evergista eddela: Seitz (1915: 275).
Deilemera mülleri: van Eecke (1928: 67) (in part).
Deilemera evergista f. *eddela*: Bryk (1937: 90).
= *Nyctemera mülleri enganica* Roepke (1957: 175), **syn. nov.**

Material examined: No more than four specimens are known, which are in BMNH and RMNH.

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Types:

***eddela*:** holotype (by monotypy) ♂, "Engano, 1905-65, *Deilemera eddela* Swinhoe, ♂, type", BMNH.

enganica: holotype (by original designation) ♂, "Enggano, 1922, E. Jacobson", RMNH. "Allotype" ♀, "Enggano, 1922, E. Jacobson", RMNH.

Further there is one ♀ specimen in the collection of RMNH from Enggano, Rakoaha, collected on 22. vi. 1926.

Distribution: The subspecies *eddela* is confined to the island of Enggano, southwest of Sumatra.

General characters: The general characters are about the same as in the typical subspecies. The black brown segmental bands on the abdomen, however, are dorsally deeply constricted, but in none of the known specimens interrupted.

Wing characters of ♂: Lfw. 23–24 mm. Shape of Fw. and Hw. the same as in *muelleri*. The dark pattern very extended, leaving only a few white patches and spots. Wing base yellow. Basal field with white patch. Vein 1 in wing base white. Dorsum in basal field white. Fascia narrow, which is formed by two confluent longitudinal patches near the costa and at the end of the cell, and on vein 2 a white stripe, which in one specimen is larger, forming a horizontal longitudinal patch (f. *enganica* Roepke, 1957). In the marginal field on vein 4 a round white spot and another one between vein 6 and 7.

Hw. white with more developed dark brown marginal band than in *muelleri*, from apex to tornus, but near tornus more broken up in patches. At apex a white patch and between veins 3 and 4 a small rounded spot. At wing base only slightly darkened with grey brown on vein 1.

Wing characters of ♀: Lfw. 24 mm. Shape of Fw. and Hw. the same as in *muelleri*. Like in ♂♂, dark pattern very extended. Basal patch large, not divided by cubital vein. Wing base yellow. Dorsum in basal field white. Fascia very narrow, almost closed by the extended brown pattern, leaving only an irregularly shaped white patch near costa and a narrow horizontal white band along vein 2. Marginal band with two white patches, one overlapping vein 4 and a larger one overlapping veins 6 and 7.

Hw. white with extended dark brown pattern. Marginal band broad and complete, with white apex and a very small white spot between veins 3 and 4. Fringes in tornal area white. From wing base vein 1 dark brown for half its length. Between veins 1 and 2 a brown smear running two-third of wing length from marginal band pointing to wing base. Another smear on vein 5 running from apex to wing base, but not reaching it, interrupted in wing centre.

Taxonomic remark: Roepke (1957) described the "subspecies" *enganica* from Enggano, but this is no more than a variation of *eddela*. There is little known about the variability of *eddela* since there are only four specimens known.

Nyctemera muelleri mentawaiensis ssp. n.

(Figs. 7–8)

Holotype ♂, "Sipora I., W. of Sumatra, October 1924, (C. B. K. & N. S.)", BMNH.

Paratypes (in total 3 ♂♂, 1 ♀): 1 ♂, 1 ♀, "Sipora I., W. of Sumatra, October 1924, (C. B. K. & N. S.)", BMNH; 2 ♂♂, "Siberut, W. of Sumatra, September 1924, (C.B.K. & N.S.)", BMNH.

Etymology: The name *mentawaiensis* is derived from the Mentawai Islands, where the subspecies is confined to.

Distribution: Only five specimens are known of subspecies *mentawaiensis*, which seems to be confined to the Mentawai Islands Sipora and Siberut, west of Sumatra.

General external characters: Head and thorax with dark brown pattern very extended, leaving only narrow edges of yellow around eyes and around the three black spots on thorax dorsally. Abdomen with broad black brown segmental bands, dorsally slightly constricted in ♂, but hardly constricted in ♀.

Wing characters of ♂: Lfw. 21–23 mm. Shape of Fw. and Hw. the same as in *muelleri*. Dark pattern in Fw. very extended, leaving only a white diabolo-shaped patch at the end of the cell and a small white spot on vein 2 as relicts of the fascia. Wing base like wing colour, dark brown. Two white spots in the marginal band: one small spot near the apex and a larger one overlapping vein 4.

Hw. white with completely developed dark brown marginal band, from apex to tornus, but tornal area cream-white with pheromone scales. Fringes from tornus halfway to apex cream-white. Dorsum white. Wing base grey brown to two-third of wing surface, with irregular edge.

Wing characters of ♀: Lfw. 22 mm. Shape of Fw. and Hw. the same as in *muelleri*. Dark pattern in ♀, like in ♂, very extended, leaving only a white "diabolo" at the end of the cell and a tiny white spot on vein 2 as relicts of the fascia. One small white spot in the marginal band, just below vein 4.

Hw. white with completely developed dark brown marginal band, from apex to tornus. Fringes in tornal area whitish. Wing base and dorsum grey brown to almost half of wing surface, with irregular edge.

Variability: One ♂ from Siberut has the dark brown wing pattern even more extended than the other ♂♂. In the Fw. only the two white marginal spots are left and a small spot at the costa. Wing base with small yellow dot. The Hw. is very peculiarly patterned, with the dark brown marginal band very broad, running from apex to tornal area, but gradually narrowing. Marginal band confluent with grey brown costal half of the Hw. surface. Dorsum white, tornus cream-white.

Nyctemera gerra (Swinhoe, 1903)

(Figs. 9–16, 43a–c, 50a–b)

Nyctemera evergista: Piepers & Snellen (1896: 52) (nec Stoll, 1782) (in part).

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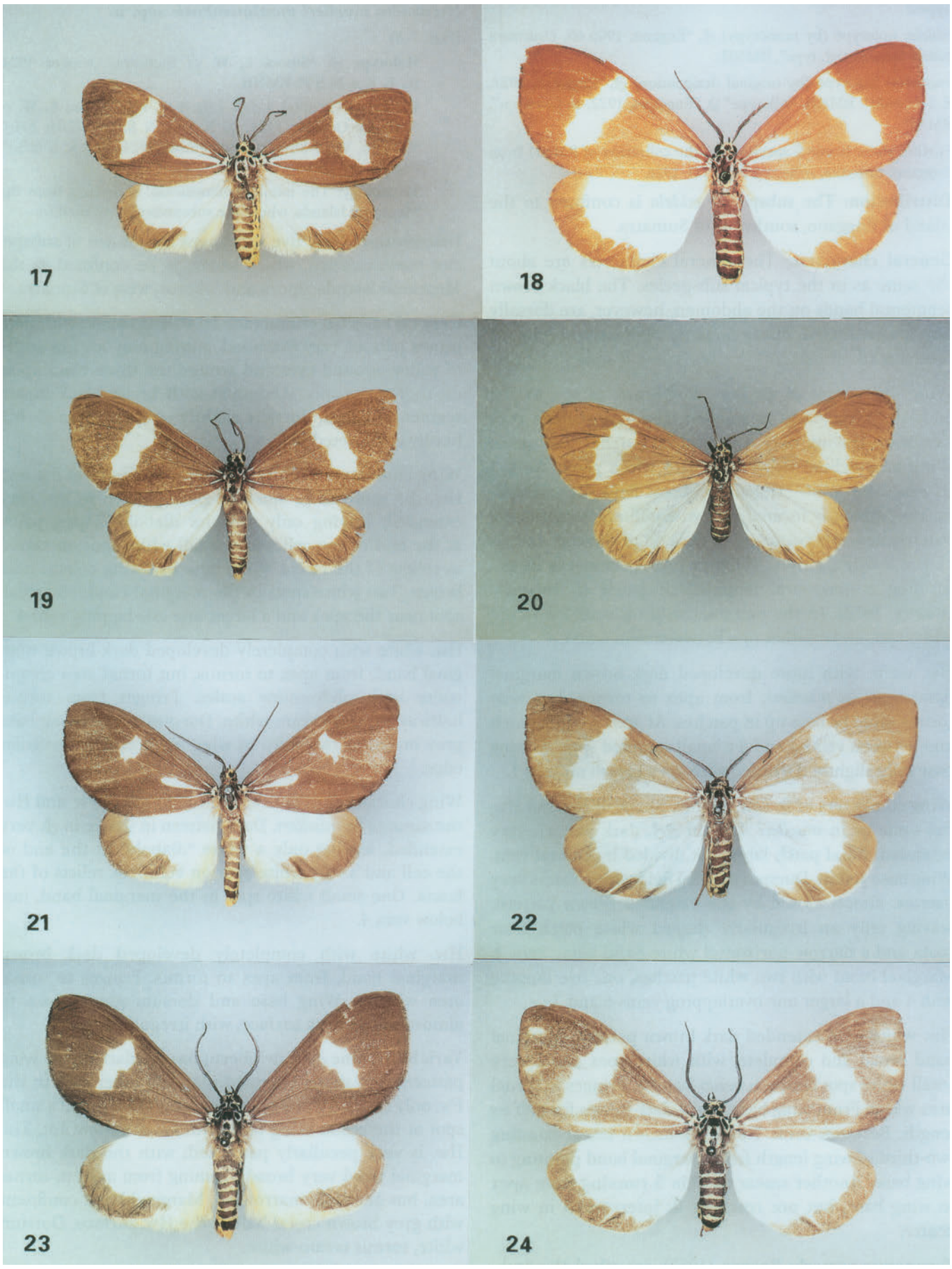

Plate 3, Fig. 17: *Nyctemera maculata maculata* ♂. Java, ZMA. **Fig. 18:** *N. maculata maculata* ♀. Java, ZMA. **Fig. 19:** *N. maculata variamacula* ssp. nov., holotype ♂. Bali, ZMA. **Fig. 20:** *N. maculata variamacula* ssp. nov., paratype ♀. Bali, ZMA. **Fig. 21:** *N. maculata variamacula* ssp. nov., paratype ♂. Lombok, BMNH. **Fig. 22:** *N. maculata variamacula* ssp. nov., paratype ♀. Lombok, BMNH. **Fig. 23:** *N. maculata variamacula* ssp. nov., paratype ♂. Flores, CMWM. **Fig. 24:** *N. maculata variamacula* ssp. nov., paratype ♀. Flores, CMWM.

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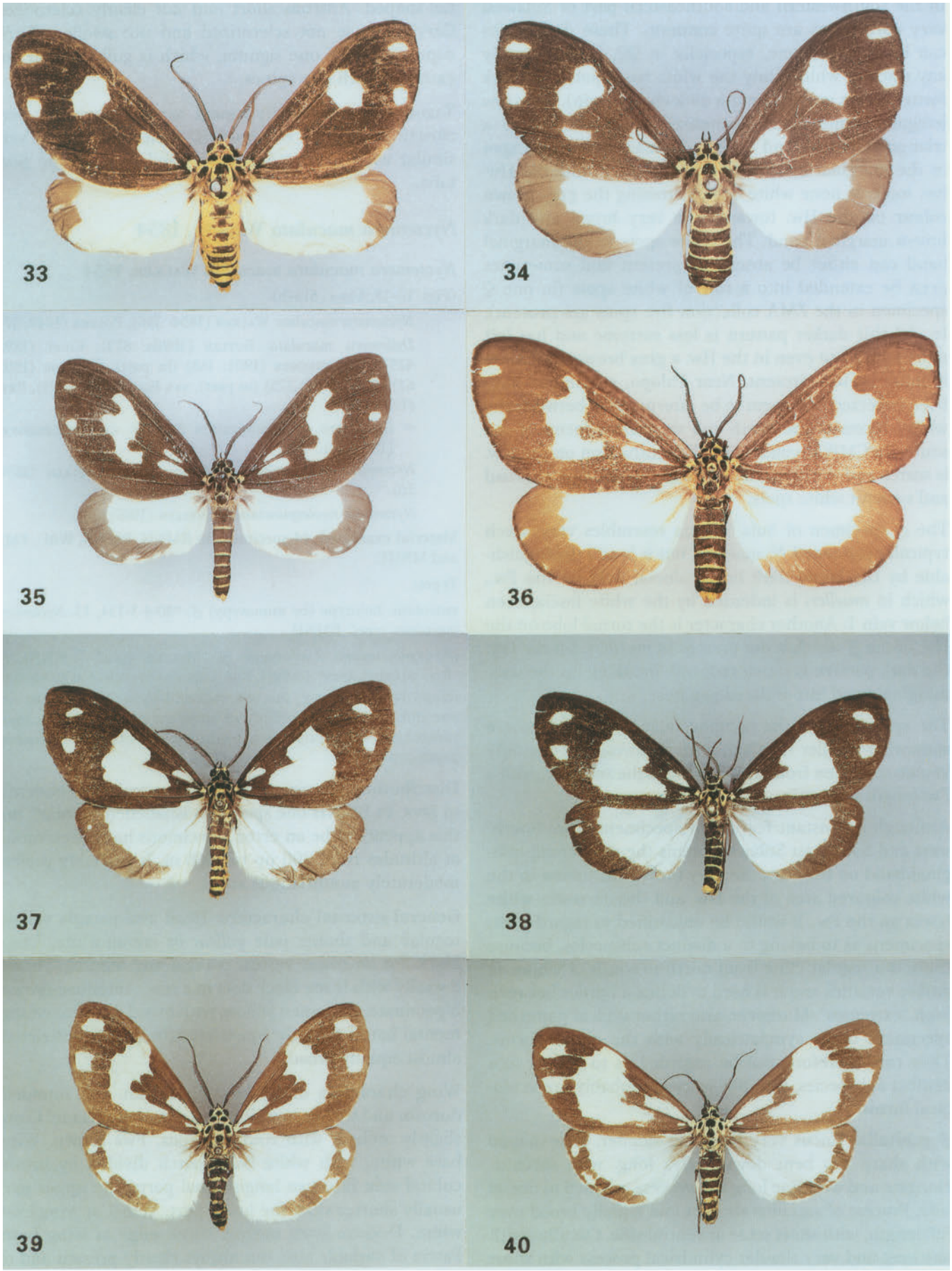

Plate 4, Fig. 25: *Nyctemera evergista evergista* ♂. Buru, RMNH. **Fig. 26:** *N. evergista evergista* ♀. Buru, RMNH. **Fig. 27:** *N. evergista agagles* ♂. Arfak Mts., Irian Jaya, CKC. **Fig. 28:** *N. evergista agagles* ♀. Arfak Mts., Irian Jaya, CKC. **Fig. 29:** *N. evergista uniplaga*, holotype ♂. Fergusson Island, BMNH. **Fig. 30:** *N. evergista uniplaga* ♀. Fergusson Island, BMNH. **Fig. 31:** *N. evergista uniplaga* mountain form ♂. Wau, Papua New Guinea, BPBM. **Fig. 32:** *N. evergista uniplaga* mountain form ♀. Hydrographer Mts., Papua New Guinea, BMNH.

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Deilemera evergista: Pagenstecher (1901: 165) (nec Stoll, 1782) (in part).

Deilemera gerra Swinhoe (1903: 63).

Deilemera aeres gerra: Seitz (1915: 275) (in part).

Deilemera aeres f. *gerra*: Bryk (1937: 87).

= *Deilemera leuctra* Swinhoe (1903: 62), **syn. nov.**

Deilemera aeres leuctra: Seitz (1915: 275), Bryk (1937: 88).

Nyctemera aeres leuctra: Roepke (1957: 167).

Nyctemera aeres leuctra f. *extrema* Roepke (1957: 167).

= *Nyctemera aeres vandenberghi* Roepke (1957: 167), **syn. nov.**

Material examined: 98 specimens in BMNH, CKC, CMWM, RMNH, ZMA and MNHU.

Types:

gerra: 2 syntypes: ♂, "Talaut, Doherty, Feb.–Mar. 1892, 97-97, *Deilemera gerra* Swinhoe, ♂, type", BMNH; ♀, "Talaut, Doherty, Feb.–Mar. 1892, 97-97, *Deilemera gerra* Swinhoe, ♀, type", BMNH. Both specimens are in excellent condition, and I **designate** herewith the ♂ specimen as **lectotype,** the ♀ specimen becomes paralectotype.

leuctra: 2 syntypes: ♂, "Sangir, Doherty, Feb.–Mar. 1892, 97-97, *Deilemera leuctra* Swinhoe, ♂, type", BMNH; ♀, "Talaut, Doherty, Feb.–Mar. 1892, 97-97, *Deilemera leuctra* Swinhoe, ♀, type", BMNH. As with *gerra*, both specimens are in perfect condition, but the ♀ lost its abdomen; it is now in a tube attached to the pin. I herewith **designate** the ♂ specimen as **lectotype,** the ♀ specimen becomes paralectotype. – *Deilemera leuctra* has been described one page earlier than *D. gerra*. However, the phenotype of *leuctra* seems rather rare and very local, so I prefer the commonest form (*gerra*) of this species to carry the species' name (first reviser's choice, ICZN 1999: Art. 24.2).

extrema: "holotype"[?] ("by original designation") ♀, "Sangir, 1912, ♀, P. J. van den Bergh", ZMA. "Paratype"[?], ♀, "Sangir, 1912, ♀, P. J. van den Bergh", ZMA. – Two specimens, as mentioned by Roepke (1957), are in ZMA, though it is not clear which specimen can be regarded as the "type" since there are no original type labels attached to the pins. The specimen depicted by Roepke (1957), which he called "holotype" in his publication, is not present in the ZMA. It is not clear which collection this specimen came from. However, since this taxon is an infrasubspecific "forma" only, the problem is not really relevant, because infrasubspecific names are not based on valid types.

vandenberghi: holotype (by original designation) ♂, "Celebes, Minahassa, *Deil. gerra* Swinhoe, ♂, Coll. 1912, v. d. Bergh", ZMA. "Allotype", ♀, "Celebes, Bolaang Mongondow, Bunong", ZMA.

Distribution: The species has its main distribution on Sulawesi and the Sangihe-Talaud Archipelago, but it seems to occur also on Sanana Island (Sula Archipelago, east of Sulawesi) from which one recently collected specimen is present in the ZMA collection. *Nyctemera gerra* has been found at altitudes from sea level up to 1400 m.

General external characters: Head yellow, thorax pale yellow. Black dots on frons, vertex, patagia and tegulae very large, leaving only a margin of yellow. Thorax dorsally with three large black dots in line. Antennae black, bipectinate, indentical in ♂ and ♀. Abdomen with extended black segmental bands, slightly constricted dorsally, leaving a narrow yellow margin on each segment.

Wing characters of ♂: Lfw. 21–26 mm. Fw. rather short and rounded, especially at termen and dorsum.

Ground colour white with dark brown pattern. Wing base pale yellow. Basal field with large white patch, sometimes crossed by very thin brown line on cubital vein. Base of vein 1 white, confluent with basal patch. Dorsum with more or less extended white edge. White fascia irregularly shaped, always indented by dark brown patch below the cell, which is usually confluent with dark brown antemedian fascia. Outer margin of fascia not parallel with termen, but clearly diverging from dorsum to costa (see ♀ of *N. evergista evergista*). White fascia usually not reaching costa and separated from dorsum by broad dark brown dorsal area. Marginal band of Fw. dark brown, very broad at apex. Marginal band usually with two white spots: one in apex, which is very variable in size, and one on or just below vein 4.

Hw. with lobe at tornus, bearing pheromone scales. Ground colour white, with complete dark brown marginal band. Marginal band sometimes with two white spots: one in apex (which in the lectotype is almost separated in two) and one between veins 3 and 4. Fringes in tornal area cream-coloured. Underside identical to upperside.

Wing characters of ♀: Lfw. 24–27 mm. Fw. with dorsum straight, but tornus rounded, merging into termen. Apex more angled than in ♂. Ground colour white with dark brown pattern, almost identical to ♂. Wing base pale yellow. White basal patch somewhat larger and more confluent with white base of vein 1 than in ♂. Marginal band with two large white patches: one at apex and one on vein 4.

Hw. of ♀ without lobe in tornus. Ground colour white, with complete dark brown marginal band. Marginal band usually with two white spots: one in apex and one between veins 3 and 4, but one or both can be absent. Underside identical to upperside.

Variability: The dark pattern and its size are extremely variable, but most specimens are of the phenotype as described above. There are, however, some aberrant forms, one of which has even been described as a distinct species.

Deilemera leuctra Swinhoe, 1903, for instance, is probably no more than an ecological form which is most common in the Sangihe-Talaud Archipelago, but it occurs sympatrically with the typical *gerra*. The dark pattern is reduced, the dark antemedian fascia breaking up in patches and with narrower dark marginal band of Fw. and Hw.

Roepke (1957) described the form *extrema* for extreme variaties of *leuctra* in which the dark pattern is even more reduced. The antemedian fascia and marginal band are in *extrema* even more broken up, leaving only some isolated dark brown patches. In those specimens the dark segmental bands on the abdomen are less broad.

Roepke (1957) also described the subspecies *vandenberghi* for the "dark form" in North Sulawesi, but this is in fact the typical *gerra* and is therefore a junior synonym of *gerra*.

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In the southwestern and southeastern part of Sulawesi very dark forms are quite common. These dark forms can be very extreme, especially in ♀♀, leaving hardly any trace of white. Only the white basal patch (in dark forms always crossed by the dark cubital vein), a narrow irregular white fascia (sometimes even reduced to a triangular patch) and usually at least one white spot in the marginal band is left on the Fw., while the Hw. has some or none white beams crossing the grey brown colour on the Hw. towards the very broad and dark brown marginal band. The white spots in the marginal band can either be absent or present and sometimes even be extended into a row of white spots (in one ♀ specimen in the ZMA collection five spots are present). In ♂♂ this darker pattern is less extreme and has left more white, but even in the Hw. a grey brown suffussion is more or less present. Near Palopo, specimens have been collected that seem to be intermediate between the whiter forms of the north and the darker forms of the south (in CMWM collection). The suffussion on the Hw. is scarce and the marginal band on Fw. and Hw. is broad and without white spots.

The ♂ specimen of Sula Sanana resembles very much typically patterned *N. muelleri*, but it is still distinguishable by the broad dark brown dorsal field on the Fw., which in *muelleri* is indented by the white fascia, even below vein 1. Another character is the tornal lobe on the Hw. of the ♂ which is not present in *muelleri*. On the Hw. the dark pattern is much reduced, breaking up the dark marginal band into isolated patches.

The specimens in the Sangihe-Talaud Archipelago are somewhat smaller than those on Sulawesi, but the only known specimen from Sula Sanana is the smallest, with a Fw. length of 21 mm.

Although a constant feature in specimens from Southwest and Southeast Sulawesi seems the very broad marginal band on the Hw., the grey brown suffussion in the white coloured area of the Hw. and the narrower white fascia on the Fw., it would be unjustified to regard these specimens as to belong to a distinct subspecies, because there is a regular cline from north to south of whiter to darker variaties and it is hard to define a border between both "extremes". Moreover, also rather typical patterned specimens occur sympatrically with the darker forms. They can, therefore, not be regarded as to belong to a distinct subspecies, but, like *leuctra*, probably are ecological forms.

♂ genitalia: Uncus very long and slender, claw-shaped with sharp top bent down. Valva long, with sacculus elongate and with one long flat process, nodded to dorsal side. Process of sacculus straight and equally broad over full length, with short setae at ventral side. Cucullus with one long and very slender cylindrical process with short setae. Aedeagus short and thick, curved and distally at one side open. Coecum thick. No cornuti.

♀ genitalia: Lamella antevaginalis on both sides of ostium with deep pocket-shaped excavation. Ostium short funnel-shaped. Antrum short and not clearly sclerotized. Cervix bursae not sclerotized and not swollen. Bursa copulatrix with one signum, which is gully-shaped and extended with tiny spines.

Taxonomic remark: *Nyctemera gerra* is obviously very closely related to *N. muelleri*, indicated by the very similar wing pattern and some similarities in the genitalia.

Nyctemera maculata Walker, 1854

Nyctemera maculata maculata Walker, 1854

(Figs. 17–18, 44a–c, 51a–b)

Nyctemera maculata Walker (1854: 396); Roepke (1949: 57).

Deilemera maculata: Butler (1880a: 673), Kirby (1892: 425), Pagenstecher (1901: 168) (in part), Swinhoe (1903: 62), Seitz (1915: 275) (in part), van Eecke (1927: 221), Bryk (1937: 90).

= *Leptosoma noviespunctatum* Snellen van Vollenhoven (1863: 42).

Nyctemera (Leptosoma) noviespunctatum: Snellen (1898: 26).

Nyctemera noviespunctatum: Snellen (1907: 116).

Material examined: 44 specimens in BMNH, RMNH, WAU, ZMA and MNHU.

Types:

maculata: holotype (by monotypy) ♂, "40-4-3-134, 13. *Nyctemera maculata,* type", BMNH.

noviespunctatum: 2 syntypes: ♂, "Muller, Java", [RMNH]; ♂, "Reinw[ardt], Java", RMNH. The ♂ specimen collected by Müller misses both antennae, the one collected by Reinwardt has still one antenna and is therefore the "most complete" type specimen, which I herewith **designate** as **lectotype,** that of Müller becomes paralectotype.

Distribution: *Nyctemera maculata maculata* is endemic to Java. In BMNH one specimen is labelled "Seram", but this appears to be an error. Specimens have been found at altitudes from 300 up to 1500 m. It probably prefers moderately mountainous areas.

General external characters: Head and patagia yellow, tegulae and thorax pale yellow or cream-white. Large black dot on frons, vertex, patagia and tegulae. Thorax dorsally with three black dots in a row. Antennae brown, bipectinate. Abdomen yellow, with broad dark brown segmental bands dorsally constricted, in ♀ less constricted, almost equally broad.

Wing characters of ♂: Lfw. 21–25 mm. Fw. rounded; dorsum and tornus merging into rounded termen. Costa slightly arched, with rounded apex. Fws brown. Wing base white, with white basal patch divided by brown cubital vein into two longitudinal parts, the upper part usually shorter than the lower part. Vein 1 at wing base white. Dorsum with narrow white edge at wing base. Fascia of variable size, but always clearly present and of regular shape, usually reaching costa, but not in all specimens.

Hw. somewhat stretched, but rounded. Hw. white with complete brown marginal band, running from apex to tor-

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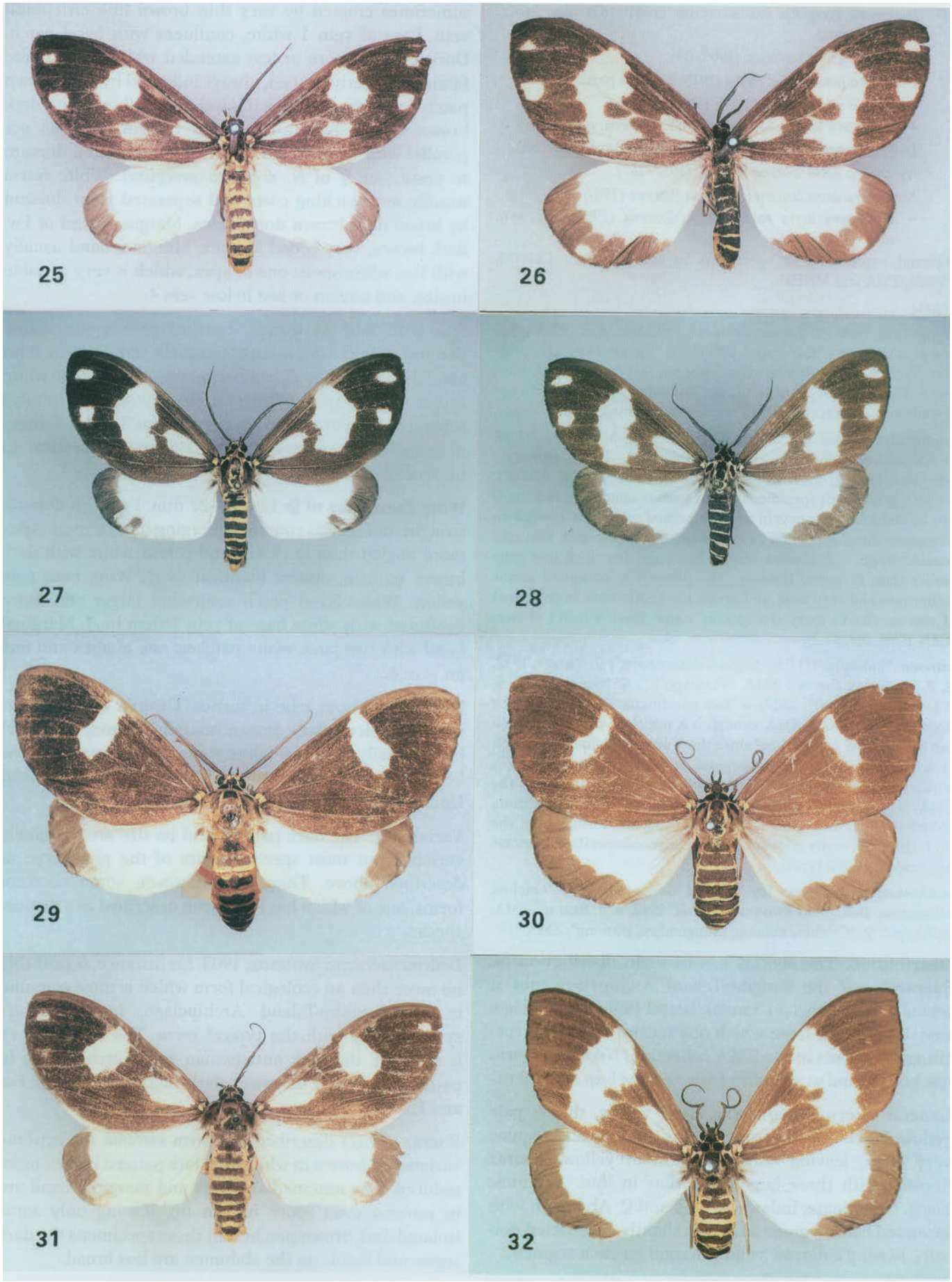

Plate 5, Fig. 33: *Nyctemera evergista bismarckiana* ssp. nov., holotype ♂. New Ireland, BMNH. **Fig. 34:** *N. evergista bismarckiana* ssp. nov., paratype ♀. New Ireland, BMNH. **Fig. 35:** *N. swinhoei* spec. nov., holotype ♂. Halmahera, ZMA. **Fig. 36:** *N. swinhoei* spec. nov., paratype ♀. Halmahera, ZMA. **Fig. 37:** *N. luzonica luzonica* ♂. Mindanao, CKC. **Fig. 38:** *N. luzonica luzonica* ♀. Mindanao, CKC. **Fig. 39:** *N. luzonica plesiastes* ♂. Luzon, CKC. **Fig. 40:** *N. luzonica plesiastes* ♀. Luzon, CKC.

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nus. Modified tornal area without lobe, but with distinct golden yellow fringes, which even can continue to vein 4.

Wing characters of ♀: Lfw. 22–24 mm. In general the same as in ♂. Fw. with narrow white edge at dorsum longer, ending halfway towards tornus. Variability, as in ♂, of more or less extended white fascia, which reaches costa or not.

Hw. without modified tornal area, but with short white fringes.

♂ genitalia: Uncus long, trunk-shaped and slightly "S"-curved, at base dorsally with shallow groove. Valva long, with sacculus elongate and with one long process, curved to dorsal side. Process of sacculus with short setae at ventral side and with top broadened like a spatula. Cucullus with one slender cylindrical process with short setae. Aedeagus short and thick, curved and distally at one side widely open. Coecum rather long. No cornuti.

♀ genitalia: Lamella antevaginalis on both sides of ostium with rounded excavation, but without pockets. Sinus vaginalis long, but not clearly sclerotized. Ostium long funnel-shaped. Antrum without any modified sclerotization. Cervix bursae slightly swollen, but not sclerotized. Bursa copulatrix with one small signum, spear-head-shaped.

Nyctemera maculata variamacula ssp. n.

(Figs. 19–24)

Deilemera maculata: Pagenstecher (1898: 199) (nec Walker, 1854); Pagenstecher (1901: 168) (in part), Seitz (1915: 275) (in part).

Nyctemera arctata scalarium: Roepke (1949: 49) (nec Snellen van Vollenhoven, 1854) (in part).

Holotype ♂, "Nederlands Indië, Bali, Batoeriti, 1100 m, xi. 1939, leg. J. P. A. Kalis, coll. J. M. A. v. Groenendael", ZMA.

Paratypes (in total 7 ♂♂, 7 ♀♀): 1 ♂, 2 ♀♀, Nederlands Indië, Bali, Batoeriti, 1100 m, x.–xi. 1939, J. M. A. van Groenendael, ZMA; 1 ♀, Nederlands Indië, Bali, Gumbrieh-Negara, iv. 1940, J. M. A. van Groenendael, ZMA; 3 ♂♂, 2 ♀♀, Lombok, Sapit, 2000', v.–vi. 1896, H. Fruhstorfer, BMNH; 1 ♂, 1 ♀, Lombok, Sapit, 2000', iv. 1896, H. Fruhstorfer, BMNH; 1 ♂, Indonesia, W. Flores, Rego, 600 m, xi. 1953, J. M. A. van Groenendael, ZMA; 1 ♂, Indonesia, Flores, Gn. Ranaka, 3 km S Mano, 1270 m, 17.–21. iv. 1996, R. Brechlin, CMWM; 1 ♀, Indonesia, Flores, Gn. Ranaka, 9 km O Ruteng, 1140 m, 14.–15. iv. 1996, R. Brechlin, CMWM.

Etymology: The name *variamacula* refers to the variability of the white pattern in this subspecies.

Distribution: The subspecies *variamacula* has been found on the Lesser Sunda Islands of Bali, Lombok and Flores. It is, however, uncertain whether populations of the subspecies still do exist on Bali and Lombok, since only a few specimens are known and were captured more than sixty years ago. Since then the islands of Bali and Lombok have been cultivated over a large area. Fortunately more recent captures are known from the western part of Flores.

General external characters: Like in *N. maculata maculata*, except for the black spots on head and thorax which are generally much larger. The dark brown segmental bands on abdomen broader, but in ♂♂ still slightly constricted. In ♀♀ these segmental bands very broad, leaving only a narrow yellow edge on each segment.

The cline pattern of getting darker eastward in *maculata maculata* and *m. variamacula* seems to reverse in Flores, especially in the wing pattern of the ♀. The black dots on frons, vertex, patagia, tegulae and thorax are even slightly smaller than in *maculata maculata*.

Wing characters of ♂: Lfw. 22–25 mm. Shape of Fw. like in *maculata maculata*. Wing base pale yellow. Holotype without basal white patch, only with narrow white stripe between vein 1 and cubital vein. In some specimens the basal patch is present, but smaller than in *maculata maculata*. Subcostal vein and vein 1 white at base. Fascia narrower than in *maculata maculata*, in some specimens crossing subcostal vein, but not reaching costa. In some specimens white pattern of fascia reduced, leaving a longitudinal irregular patch. Dorsum with narrow white edge.

Hw. like in *maculata maculata*, white with brown and complete marginal band. Tornal area with golden yellow fringes.

Wing characters of ♀: Lfw. 21–25 mm. Shape of Fw. and Hw. like in *maculata maculata*. Fw. with very variable white pattern. Basal patch in some specimens absent or only distinctly present below cubital vein, in others complete. Vein 1 and subcostal vein at wing base white, sometimes more extended. Fascia broad, in some specimens reaching costa, with isolated costal spot or confluent. Marginal band with or without white spot(s), if complete, with one in the apex and one on vein 4.

Hw. white with broad and complete brown marginal band, somewhat indented and completely cut by vein 2. Fringes from tornus halfway to apex white.

Taxonomic remarks: The subspecies *variamacula* is very variable in wing pattern. There seems to be a cline of getting darker eastward from Java to Lombok, which reverses in Flores, shown especially in the reduction or extension of the basal patch. On Java (subspecies *maculata*) the specimens are rather uniform, on Bali less uniform and with some variation, and more eastward they are even more variable. The specimens from the Lesser Sunda Islands are sometimes very hard to divide in separate phenotype groups and therefore it seems more justified to consider these specimens to belong to one subspecies, *variamacula*, rather than three or more subspecies.

Nyctemera evergista (Stoll, 1782)

Nyctemera evergista evergista (Stoll, 1782)

(Figs. 25–26, 45a–c, 52a–b)

Phalaena Geometra evergista Stoll (1782: 155).

Deilemera evergista: Hübner (1816: 179), Butler (1880a: 673), Kirby (1892: 425), Swinhoe (1892: 146), Pagenstecher

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(1897: 441) [in part], 1901: 165 [in part]), Swinhoe (1903: 61), Seitz (1915: 275) (in part), van Eecke (1926: 350, 1928: 66), Bryk (1937: 89) (in part).

Nyctemera evergista: Walker (1854: 393), Röber (1891: 325), Piepers & Snellen (1896: 52) (in part).

Leptosoma evergista: Snellen van Vollenhoven (1863: 37).

Abraxas evergistaria: Guenée (1857: 203) (misspelling; invalid emendation?).

Nycthemera evergistaria: Pagenstecher (1884: 215) (misspelling).

Nyctemera evergistaria: Pagenstecher (1886: 41) (misspelling).

Leptosoma evergistaria: Pagenstecher (1888: 113) (misspelling).

= *Leptosoma aeres* de Boisduval (1832: 198) (in part), **syn. nov.**

Nyctemera aeres: Walker (1854: 393) (in part), Holland (1900: 560), Pagenstecher (1901: 167) (in part).

Nyctemera aeres aeres: Roepke (1957: 167) (in part).

Deilemera aeres: Kirby (1892: 425) (in part), Pagenstecher (1901: 167) (in part), Swinhoe (1903: 62) (in part), Rothschild (1915b: 214), Seitz (1915: 275) (in part), van Eecke (1926: 350), Bryk (1937: 87) (in part).

= *Nyctemera intercisa* Walker (1864: 205).

Deilemera intercisa: Kirby (1892: 425), Swinhoe (1892: 147, 1903: 62).

Deilemera evergista ab. *intercisa:* Seitz (1915: 275).

Deilemera evergista f. *intercisa:* Bryk (1937: 90).

= *Nyctemera menes* C. Felder (1861: 38), Walker (1866: 1878).

Deilemera menes: Kirby (1892: 425), Pagenstecher (1901: 168).

Deilemera aeres f. *menes:* Seitz (1915: 275).

Deilemera aeres leuctra f. *menes:* Bryk (1937: 88).

= *Nyctemera mutabilis* [var. α] Walker (1864: 206).

Nyctemera mutabilis var. β Walker (1864: 207).

Deilemera mutabilis: Butler (1880a: 673), Kirby (1892: 425) (in part).

Leptosoma aglages: Snellen van Vollenhoven (1863: 41) (misspelling) (nec de Boisduval, 1832).

Leptosoma agagles: Pagenstecher (1888: 114) (nec de Boisduval, 1832).

Deilemera aeres agagles: Bryk (1937: 87) (nec de Boisduval, 1832) (in part).

Material examined: 170 specimens in BMNH, BPBM, CKC, MCSN, OXUM, RMNH, SMFL, ZMA and MNHU.

Types:

evergista: type material not located and probably lost. Fortunately Stoll (1782) depicted the specimen he described rather well (plate CCCLXIX, fig. E), so this can be used as reference of how the type specimen must have looked like. The appearance of specimens from Ambon is very uniform, so there is no chance of further confusion. It is therefore not necessary to designate a neotype.

aeres: syntypes not located. Generally expected to be lost, but this is not personally verified. De Boisduval (1832) mentions at least three specimens, from Buru, Offack and "New Guinea". The specimens from Offack and New Guinea undoubtedly refer to *evergista agagles* (see below).

intercisa: holotype (by monotypy) ♀, "Amb[on], Wallace", OXUM. In his original description Walker (1864) writes about a ♂ specimen, but this is evidently not correct.

menes: type material (holotype by monotypy) not located, probably lost. The ♂ specimen described is from Ambon and "affinis *N. Agagli* Boisd." (= resembles *agagles* de Boisduval).

mutabilis: holotype (by monotypy) ♂, "Amb[on], Wallace", OXUM. The two other described variaties β (from Ceram) and γ (from Ternate) do not have a type status.

Note: Swinhoe (1892) did recognise *mutabilis* as being a junior synonym of *evergista* and was correct in considering "var. γ" from Ternate to be another species, but he made a mistake while designating "var. γ" as the "type" of *mutabilis*. For a more detailed discussion of this confusing action and an even more complicated misidentification, see the text of *N. swinhoei.*

Distribution: *Nyctemera evergista evergista* is distributed on the Moluccan Islands of Ambon, Lease Islands (Uliasser Islands), Seram and Buru. Specimens have only been collected at low altitudes, from sea level up to 500 m. In the CKC collection one ♀ specimen is labelled "Java", but this appears to be an error.

General external characters: Head and thorax yolk yellow. Black dots on frons, vertex, patagia and tegulae large. Thorax dorsally with three large black dots in line. Antennae black, bipectinate, identical in ♂♂ and ♀♀. Yellow abdomen with black segmental bands in ♂♂ as broad as the yellow part, sometimes on the first three segments even reduced to dorsal spots. In ♀♀ the black segmental bands are more extended, leaving only a narrow yellow line on each segment.

Wing characters of ♂: Lfw. 22–25 mm. Fw. more or less stretched out, with rounded dorsum, tornus and termen. Ground colour white with extended dark brown pattern. Wing base yellow. Basal field with white triangular patch, never crossed by a brown line on cubital vein. Dorsum in basal area white edged. White fascia separated in two white patches: one larger more or less rounded upper part and one smaller square shaped lower part. Marginal band of Fw. very broad, with two white spots: one in apex and a larger one between veins 3 and 4.

Hw. stretched out, without a lobe at the tornus, but with a modified rumpled tornal area. Ground colour white, with a short dark brown marginal band, running from apex to vein 4, usually followed by a dark brown spot in the tornus and continuing brown fringes. Tornal area and dorsum cream-coloured. Pattern on underside of Fw. less pronounced than upperside, while on the Hw. this is more pronounced, with a complete dark brown marginal band.

Wing characters of ♀: Lfw. 24–26 mm. Fw. normally shaped, with rounded tornus. Ground colour white with dark brown pattern, similar to *N. gerra*. Wing base yellow. White basal patch triangular, sometimes very indistinct crossed by thin brown line on cubital vein. Tornus in basal area white edged. White fascia irregularly shaped, always indented by dark brown patch below the cell, which is usually confluent with dark brown antemedian fascia. Outer margin of fascia is running almost parallel with termen (see *N. gerra*). Marginal band broad with

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two white patches: one at apex and a larger one between veins 3 and 4.

Hw. of ♀ without lobe or modification in tornus. Ground colour white, usually with complete dark brown marginal band and with one white spot between veins 3 and 4, but sometimes with a very small one in apex. Underside identical to upperside.

Variability: The phenotype of *evergista evergista* is fairly uniform, but there is some variation in the dark brown pattern of the marginal band of the Hw., especially in ♀♀. Sometimes the marginal band is broken into patches and spots, but always the fringes are continued with dark brown.

♂ genitalia: Uncus long and slender, finger-shaped, sharp top not bent down. Valva very long, sacculus elongate with one long process, curved to dorsal side. Process of sacculus distally spatula shaped, with short setae at ventral side and a few longer at dorsal side. Cucullus with one long and slender cylindrical process with short setae, curved to ventral side. Aedeagus short and thick, curved and distally at one side open. Coecum long, thick and somewhat pointed. No cornuti.

♀ genitalia: Lamella antevaginalis deeply excavated on both sides of ostium, but without pockets. Ostium large funnel-shaped. Antrum short and slightly sclerotized. Cervix bursae not sclerotized, but wrinkled with vein-like structures. Bursa copulatrix with one signum, which is oval shaped, excavated and extended with tiny spines.

Nyctemera evergista agagles (de Boisduval, 1832)

(Figs. 27–28)

Leptosoma agagles de Boisduval (1832: 198); Snellen van Vollenhoven (1863: 37).

Nyctemera agagles: Walker (1854: 393).

Nyctemera agagli: Felder (1861: 38) (misspelling).

Deilemera agagles: Kirby (1892: 425), Pagenstecher (1901: 168).

Deilemera aeres agacles: Seitz (1915: 275) (misspelling).

Deilemera aeres agagles: Bryk (1937: 87) (in part).

= *Leptosoma aeres* de Boisduval (1832: 198) (in part), **syn. nov.**

Material examined: 35 specimens in BMNH, CKC and CHVM.

Types:

agagles: holotype (by monotypy) ♀, "Ex Musaeo Dr. Boisduval, *Agagles* B., Offack", BMNH.

Distribution: *Nyctemera evergista agagles* seems to be rather rare since only 35 specimens are known. This subspecies has been collected at the western part of Irian Jaya only, mainly on the Birdshead Peninsula (i.e. Arfak Mountains, Fakfak). The easternmost captures are from Wandammen Peninsula and Timeepa (South of Nabire). It has been found at altitudes from sea level up to 1450 m.

General external characters: Pattern on head, thorax and abdomen more or less identical to *evergista evergista*. Black abdominal bands more extended.

Wing characters of ♂: Lfw. 23–26 mm. Wing shape identical to the typical *evergista*, but in general smaller and Fw. less stretched out. White pattern on Fw. more extended. Wing base yellow. Basal field with large white triangular patch. Dorsum in basal area only very tiny white edged, at tornus with white fringes. White fascia complete, not separated, with outer margin extremely arched forming a large lunular patch. Marginal band of Fw. very broad, with two more or less square white spots: one in apex and one between veins 3 and 4.

Hw., like in *evergista evergista*, stretched out. Ground colour white, with a short dark brown marginal band, running from apex to vein 4, followed by a dark brown spot in the tornus and continuing brown fringes.

Wing characters of ♀: Lfw. 25–26 mm. Fw. normally shaped. Ground colour white with dark brown pattern, similar to *evergista evergista*, but white colour less extended. Wing base yellow. White basal patch triangular. White fascia usually broad and irregular shaped, indented by dark brown patch below the cell, which is connected with narrow dark brown antemedian fascia. This antemedian fascia can be broken, which then connects the white fascia with the basal patch. Outer margin of fascia arched. Marginal band broad with two white patches: one at apex and a larger one between veins 3 and 4.

Hw. of ♀ with ground colour white. With dark brown marginal band complete, between apex and tornus, and without white spots.

Variability: The wing pattern is fairly uniform, but the extension of the white colour may vary a little, as described above.

Nyctemera evergista uniplaga (Swinhoe, 1903)

(Figs. 29–32)

Deilemera uniplaga Swinhoe (1903: 61).

Deilemera evergista uniplaga: Seitz (1915: 275).

Deilemera evergista mutabilis f. *uniplaga*: Bryk (1937: 90).

Material examined: 88 specimens in BMNH, BPBM and RMNH.

Types:

uniplaga: holotype (by monotypy) ♂, "Fergusson I., xi. [18]91, 97 80, A. S. Meek, *Deilemera uniplaga* Swinhoe, ♂, type", BMNH.

Distribution: *Nyctemera evergista uniplaga* has its distribution in the eastern part of New Guinea (mainly in Papua New Guinea) and on the D'Entrecasteaux Islands (Goodenough Island and its type locality Fergusson Island). Its westernmost known locality is near Jayapura (Indonesia, Irian Jaya: "Hollandia", "Waris"), and its easternmost locality on New Guinea is Milne Bay (Papua New Guinea). Specimens have been found at altitudes from sea level up to 1700 m. There appear to be distinct differences between lowland (0–450 m) and highland forms (1200–1700 m) which are described below. There are no records known from altitudes between 450 and 1200 m.

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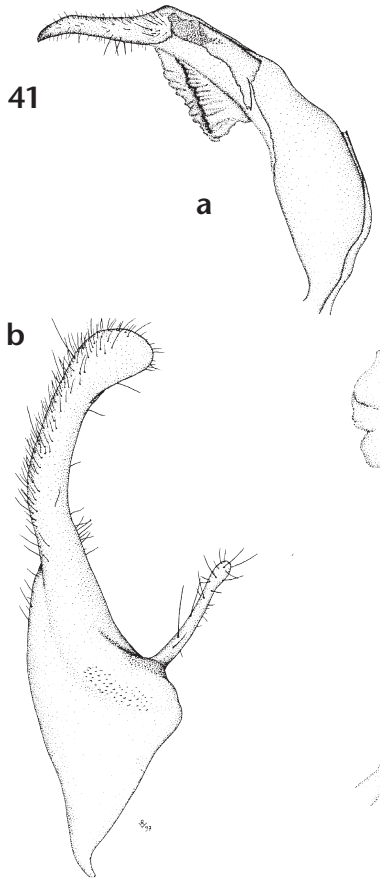

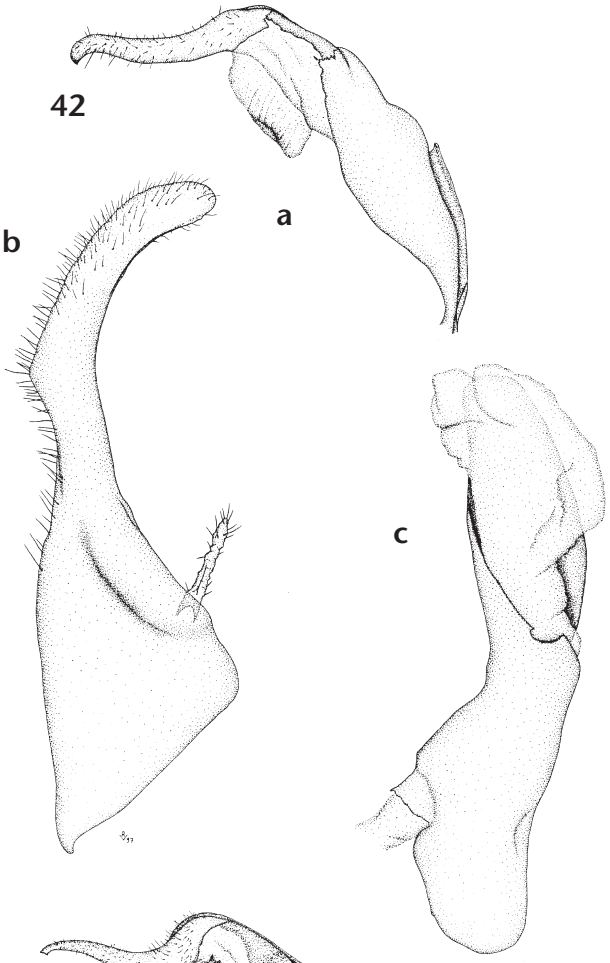

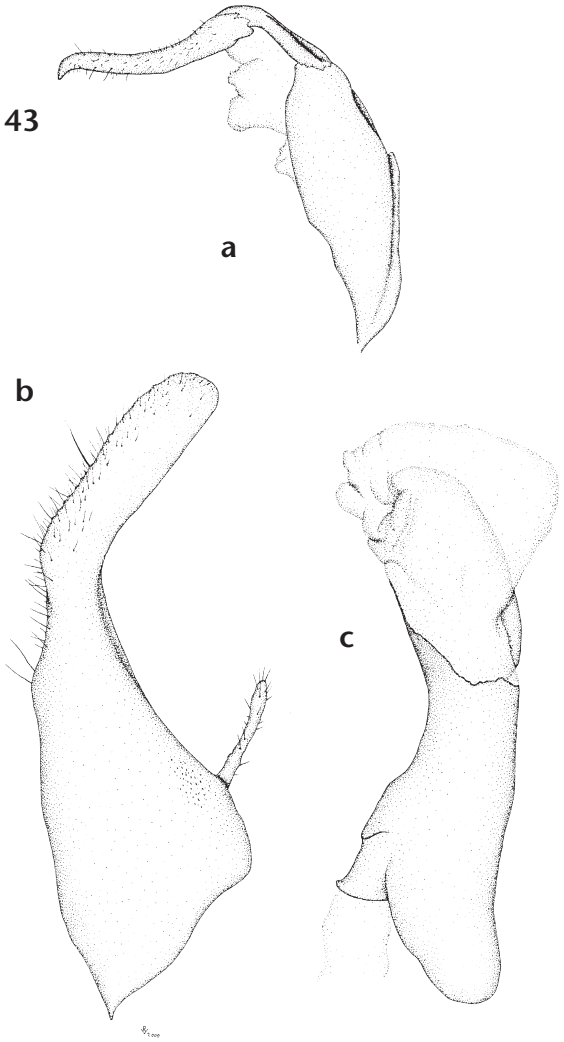

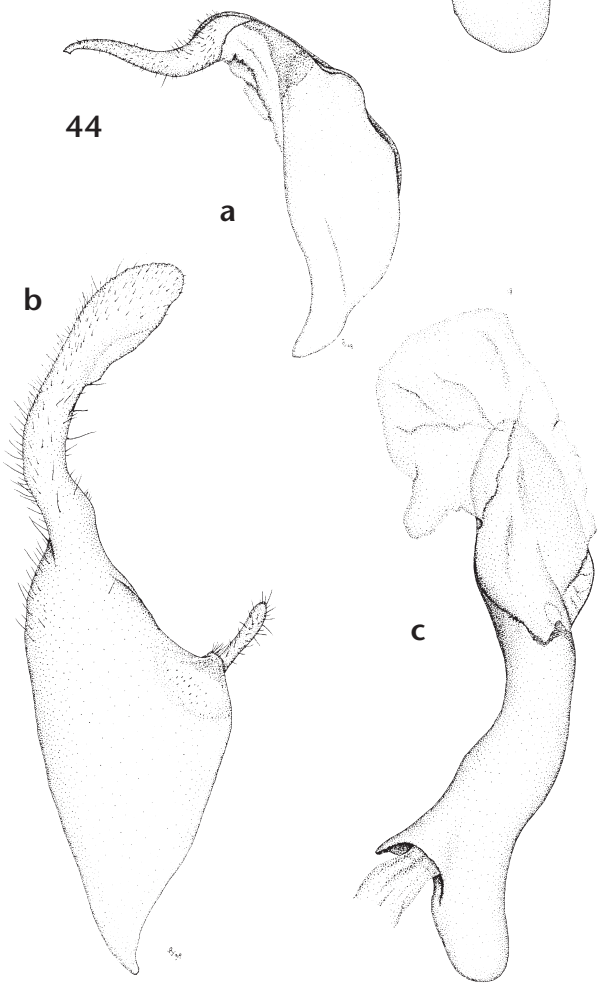

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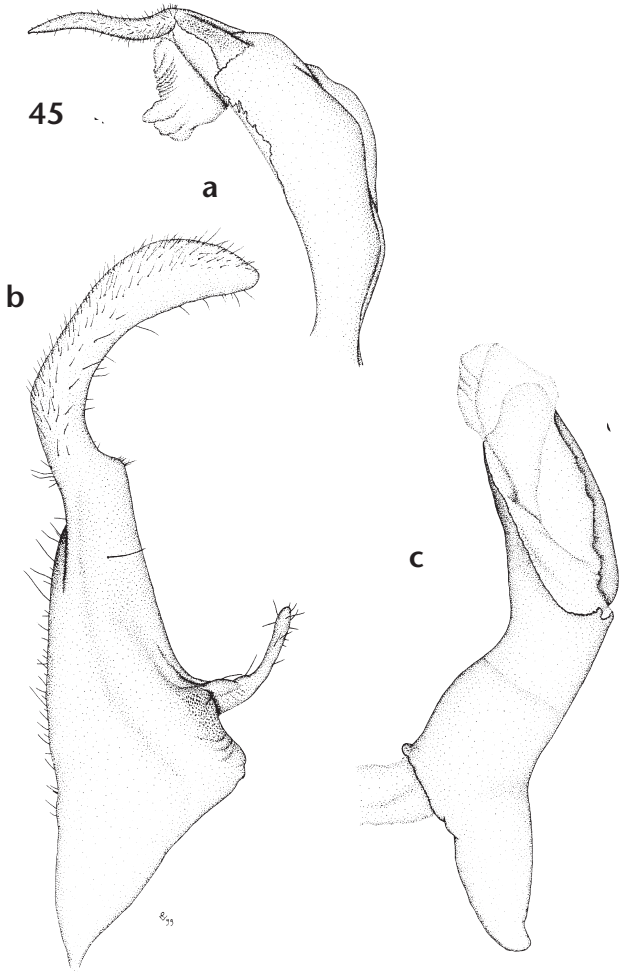

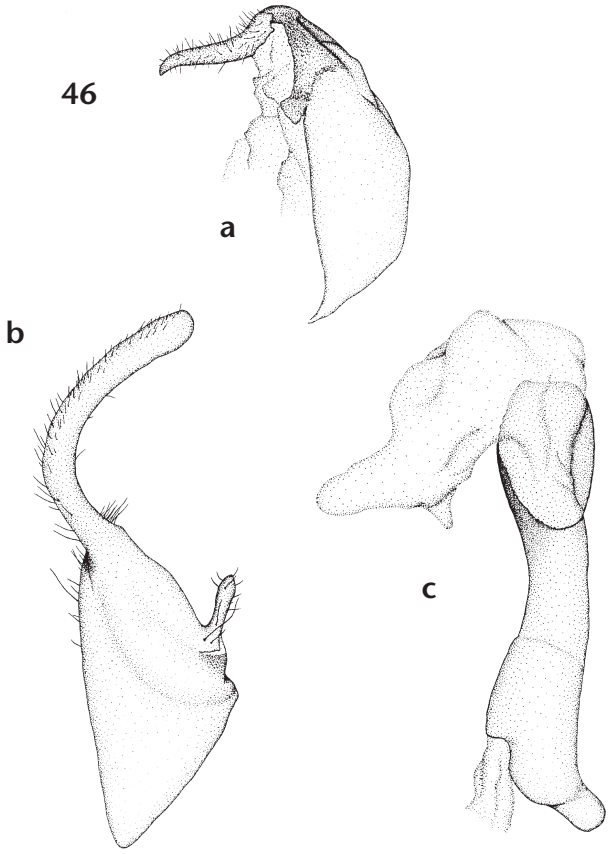

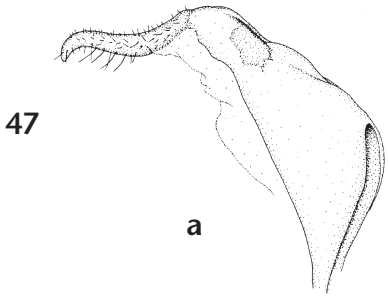

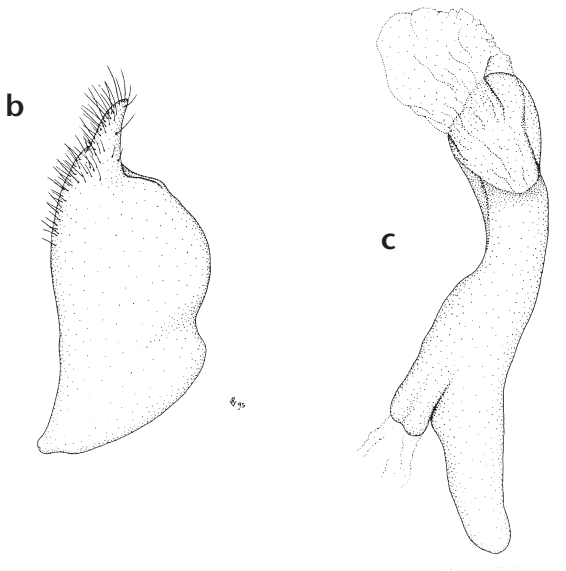

Fig. 41 a–c: Male genitalia of *Nyctemera carissima*. a: uncus, lateral view. b: right valva, outer side. c: aedeagus (RV 386). **Fig. 42 a–c:** Male genitalia of *N. muelleri*. a: uncus, lateral view. b: right valva, outer side. c: aedeagus (RV 378). **Fig. 43 a–c:** Male genitalia of *Nyctemera gerra*. a: uncus, lateral view. b: right valva, outer side. c: aedeagus (RV 379). **Fig. 44 a–c:** Male genitalia of *N. maculata*. a: uncus, lateral view. b: right valva, outer side. c: aedeagus (RV 382).

Fig. 45 a–c: Male genitalia of *Nyctemera evergista*. a: uncus, lateral view. b: right valva, outer side. c: aedeagus (RV 406). **Fig. 46 a–c:** Male genitalia of *N. swinhoei* spec. nov. a: uncus, lateral view. b: right valva, outer side. c: aedeagus (RV 384). **Fig. 47 a–c:** Male genitalia of *Nyctemera luzonica*. a: uncus, lateral view. b: right valva, outer side. c: aedeagus (RV 331).

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General characters: More or less identical to *evergista evergista*. Black abdominal bands usually more extended, but this is variable and in some specimens the black is even more reduced than in the typical *evergista*.

Wing characters of ♂: Lfw. 22–25 mm. Shape of Fw. and Hw. identical to *evergista evergista*. Fw. dark brown. Wing base yellow, sometimes suffused with dark brown or of same colour as wing.

The "lowland form", in fact the typical *uniplaga*, without basal patch, in some specimens only a very small white spot present. White fascia very variable, but usually reduced to a rounded patch at the end of the cell. In some specimens this spot is elongated or confluent with a small spot below the larger one, forming a comma-shaped patch. In most specimens a small white spot is present in the apex, more rarely a second one is present between veins 3 and 4. Dorsum narrowly edged with white.

Hw. white with short dark brown marginal band from apex to vein 4. Tornal area very wrinkled and cream-white, without tornal spot.

The "highland form" with large oval-shaped patch in basal field. White fascia usually elongated with a small hook, more or less comma-shaped, but the shape of the fascia is variable. Marginal band in some specimens with two white spots: one in apex and one between veins 3 and 4, but the presence of spots is variable.

White Hw. with dark marginal band continued in the fringes to tornus. In some specimens a tiny white spot is present in apex, but this is usually absent, so this must be a variable feature.

Wing characters of ♀: Lfw. 23–26 mm. Shape of Fw. and Hw. of normal shape. "Lowland form" with Fw. dark brown, without basal patch. Wing base yellow, sometimes somewhat suffused with brown. White fascia very variable in width, but usually complete. No spots in marginal area present. Hw. white with dark brown complete marginal band, running from apex to tornus, without spots. Dorsum and wing base in dark specimens suffused with grey brown.

"Highland form" with white pattern on dark brown ground colour very extended. White basal patch usually broad and connected with large white fascia. An isolated brown patch near the connection of basal patch and fascia, but this may be variable. Hw. as in the lowland form.

Variability: Though the general appearance is rather uniform in both geographical forms, the extension of the white of the fascia is very variable. Especially in the ♀♀ there seems to be a cline from West to East in getting darker, but more material is needed to study this feature.

Taxonomic remark: At first it seems obvious to consider the highland form to be another subspecies, but a more thorough study of the material from different altitudes showed that this cannot be true. In some mountain areas, i.e. the Hydrographer Mountains, both forms live sympatrically and intermediates occur. Moreover, there would be a scattered distribution of the highland "subspecies", like islands in the area of the subspecies *uniplaga*. Highland forms have been found in Papua New Guinea in the Morobe District (Wau), Aseki Valley, Milne Bay (among a multitude of lowland forms), Hydrographer Mountains and Mount Kebea.

*Nyctemera evergista **bismarckiana*** ssp. n.

(Figs. 33–34)

Holotype ♂, "New Ireland, December 1923, A. F. Eichhorn, Rothschild Bequest, B.M. 1939-1", BMNH.

Paratypes (in total 13 ♂♂, 11 ♀♀): 1 ♀, New Ireland [without date and collector], BMNH; 2 ♂♂, New Ireland, xi. 1923, i. 1924, A. F. Eichhorn, BMNH; 2 ♀♀, Neu Hannover, ii.–iii. 1897, Webster, BMNH; 4 ♂♂, 2 ♀♀, New Hanover, ii. 1923 (♂), ii.–iii. 1923 (♂), iii. 1923 (♂, ♀), iv. 1923 (♂, ♀) A. S. Meek, BMNH; 6 ♂♂, 5 ♀♀, New Britain, Talesea, i. 1925 (♂), ii. 1925 (3 ♂♂, 3 ♀♀), ii.–iii. 1925 (♀), iii.–iv. 1925 (2 ♂♂, ♀), A. F. Eichhorn, BMNH; 1 ♂, "Neu Britannien, Papua Nauguinea" [sic], Toma, 400 m, 2. xi. 1984, B. Willner, CMWM; 1 ♀, "Rook Isl." [Umboi], vii. 1913, A. S. Meek, BMNH.

Etymology: The name *bismarckiana* refers to the Bismarck Archipelago to where the subspecies is confined to.

Distribution: The subspecies *bismarckiana* is confined to the Bismarck Archipelago. Specimens have been found on New Britain, New Ireland, New Hanover and Umboi (Rooke Island), at altitudes from sea level up to 400 m.

General external characters: The habitus of *bismarckiana* is very similar to the typical *evergista*, but *bismarckiana* is considerably smaller. Head, thorax and abdomen like *evergista evergista*. Yellow abdomen with black bands, which in ♂ are narrower than in ♀.

Wing characters of ♂: Lfw. 19–23 mm. Shape of Fw. somewhat compressed compared to that of *evergista evergista*. Fw. blackish brown with white pattern. Wing base with yellow spot. White basal patch more or less triangular. White fascia in holotype reduced to one rounded patch at the end of the cell, but in some specimens consisting of two parts: one large patch at the end of the cell and one small spot below vein 2. Two white spots in the marginal band: in holotype of equal size, in some specimens one small spot in apex and a larger one between veins 3 and 4. Dorsum very finely white edged.

Shape of Hw. like in *evergista evergista*, stretched out. Hw. white with blackish brown marginal band from apex to tornus, but in tornus abruptly ending (holotype) or sometimes broken up in tornal patches. Fringes in tornal area continued with blackish brown. Tornal and dorsal area of Hw. wrinkled and cream-white.

Wing characters of ♀: Lfw. 21–23 mm. Shape of wings normal. White pattern very similar to ♂, but fascia with extended white pattern and variable, either divided into two parts or complete forming a hook shaped band. Marginal band with two white spots.

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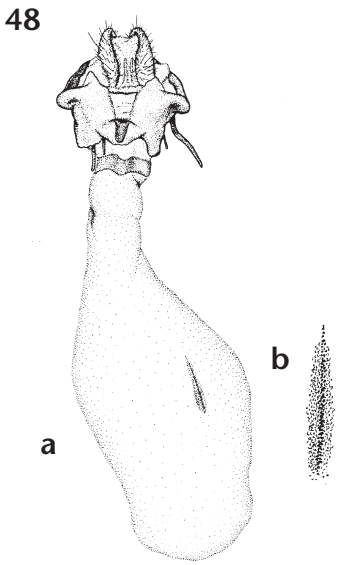

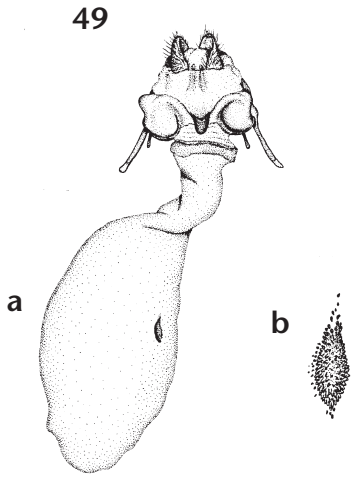

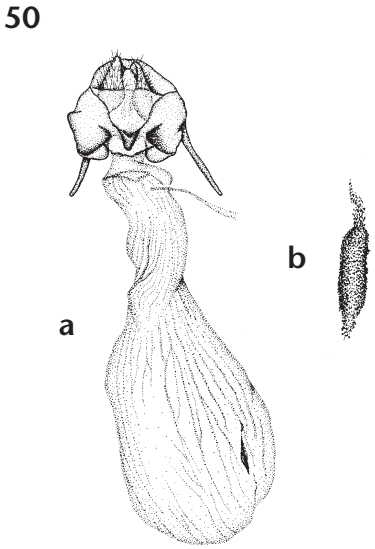

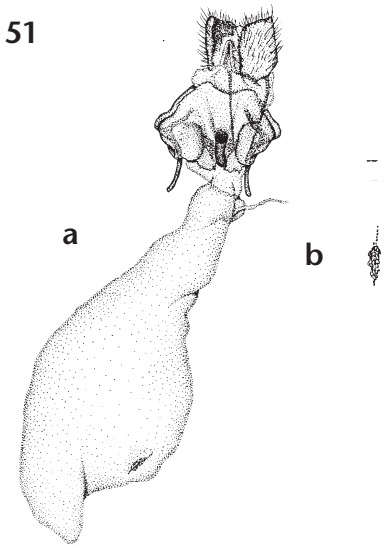

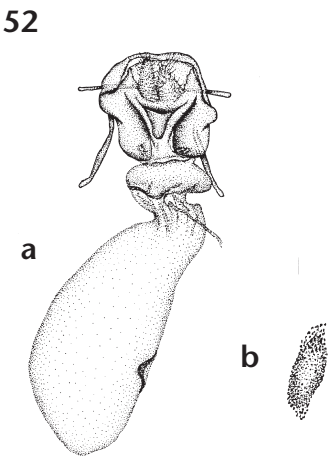

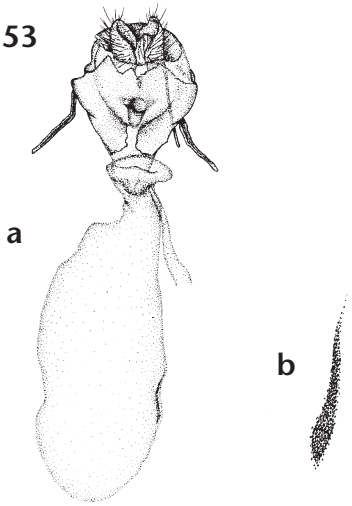

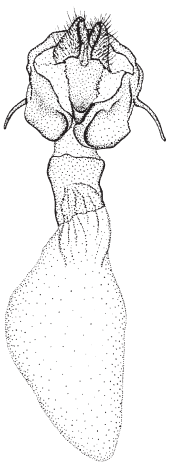

Fig. 48 a–b: ♀ genitalia of *Nyctemera carissima*. a: ventral view. b: signum (RV 387). **Fig. 49 a–b:** ♀ genitalia of *N. muelleri*. a: ventral view. b: signum (RV 388). **Fig. 50 a–b:** ♀ genitalia of *N. gerra*. a: ventral view. b: signum (RV 390). **Fig. 51 a–b:** ♀ genitalia of *N. maculata*. a: ventral view. b: signum (RV 383). **Fig. 52 a–b:** ♀ genitalia of *Nyctemera evergista*. a: ventral view. b: signum (RV 407). **Fig. 53 a–b:** ♀ genitalia of *N. swinhoei* spec. nov. a: ventral view. b: signum (RV 409). **Fig. 54:** ♀ genitalia of *N. luzonica*. Ventral view (RV 332).

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Hw. white with broad and complete brown marginal band.

Variability: In both ♂ and ♀, the fascia can vary in the extension of the white colour. The basal patch is always present, as are the two marginal spots, of which the apical one is variable in size.

Nyctemera swinhoei sp. n.

(Figs. 35–36, 46a–c, 53a–b)

Nyctemera mutabilis var. γ Walker (1864: 207).

Deilemera mutabilis: Kirby (1892: 425) (nec Walker, 1864) (in part); Swinhoe (1892: 147) (nec Walker, 1864).

Deilemera evergista mutabilis: Seitz (1915: 275) (nec Walker, 1864); Bryk (1937: 90) (nec Walker, 1864).

Deilemera evergista: Pagenstecher (1901: 165) (nec Stoll, 1782) (in part).

Deilemera aeres: Pagenstecher (1901: 167) (nec de Boisduval, 1832) (in part); Swinhoe (1903: 62) (nec de Boisduval, 1832) (in part); Seitz (1915: 275) (nec de Boisduval, 1832) (in part).

Deilemera aeres gerra: Seitz (1915: 275) (nec Swinhoe, 1903) (in part).

Deilemera aeres f. *gerra*: Bryk (1937: 87) (nec Swinhoe, 1903) (in part).

Deilemera evergista ab. *unita* Seitz (1915: 275).

Deilemera evergista f. *unita*: Bryk (1937: 90).

Holotype ♂, "Indonesia, Halmahera NW, blind road Baru–Basale, Gn. Talagarama, 500 m, 5.–7. iii. 1997, S. Naumann", ZMA.

Paratypes (in total 13 ♂♂, 13 ♀♀): 1 ♂, Batjan, 1893, Platen, MNHU; 1 ♀, Batjan, 1894, Kükenthal, SMFL; 1 ♂, Batchian, viii. 1897, W. Doherty, BMNH; 1 ♂, Batjan, Gn. Sibela, 2.–13. ii. 1996, Siniaev & Afonin, CMWM; 2 ♂♂, Batjan, Labuha, 1921, W. Roepke, RMNH; 1 ♀, Halmaheira [no date and collector], ZMA; 1 ♀, Halmaheira, P. J. van den Bergh, WAU; 3 ♂♂, Halmahera, Gn. Talagarama, 15 km SE Baru, 600 m, 22.–31. i. 1996, Siniaev & Tarasov, CMWM; 1 ♀, Halmaheira N., leg. Bernstein, RMNH; 1 ♂, Halmahera W., 20 km SSW Tobelo, Gotoro camp, 13. ix. 1995, R. de Jong, RMNH; 1 ♂, 6 ♀♀, Halmahera SE, Patani, xii. 1929, F. Shaw-Mayer, BMNH; 3 ♀♀, Morotai, leg. Bernstein, RMNH; 1 ♂, Obi, H. Fruhstorfer, BMNH; 1 ♂ [= *mutabilis* var. γ Walker 1864], Ternate, Wallace, OXUM; 1 ♂, Ternate, 1. ix. 1896, A. W. Mucks, BMNH.

Other material examined: Bacan, 34 specimens (BMNH, MNHU); Halmahera, 18 specimens (BMNH, CKC, RMNH, ZMA); Obi, 3 specimens (BMNH); Ternate, 3 specimens (BMNH).

Etymology: The species is named *swinhoei* in honour of Colonel C. Swinhoe, who discovered for the first time (1892) that the taxon "*mutabilis* var. γ" requires species status.

Distribution: *Nyctemera swinhoei* has its distribution in the North Moluccas. It is found on the islands of Bacan [= Batchian or Batjan], Halmahera, Morotai, Obi and Ternate. Specimens have been found at altitudes from sea level up to 600 m.

In RMNH there is a ♀ labelled with "Ned. Nw. Guinea" from van den Bergh, but this appears to be an error. Roepke (1957) and de Vos (1995) already stated that van den Bergh was seriously ill in 1929 and sometimes confounded prelabelled paper-triangles. The same mistake must have been made with a ♀ in BMNH with the label "New Guinea". Diehl must have confounded the label of a ♀ (now in the CKC collection) labelled with "Java, Djakarta". That the specimen indeed originates from Java is very unlikely. All three specimens mentioned probably came from Halmahera.

General external characters: Head and thorax orange-yellow. Black dots on frons, vertex, patagia and tegulae large. Thorax dorsally with three very large black dots in line. Antennae black, bipectinate, indentical in ♂ and ♀. Dark yellow abdomen with broad black segmental bands; in ♂ dorsally somewhat contracted, in ♀♀ the black is more extended, leaving only a narrow yellow line on each segment.

Wing characters of ♂: Lfw. 23–25 mm. Fw. with rounded dorsum, tornus and termen. Fw. dark brown with white pattern. Wing base orange-yellow. Basal field with white basal patch split by the brown cubital vein into two longitudinal patches, of which the upper part is smaller than the lower part. Dorsum white edged, at wing base broader white. White fascia irregularly shaped and variable, but always indented by a dark brown patch below the cell, which is usually confluent with dark brown antemedian fascia, and at the apical corner of the fascia by a dark brown rounded "tooth", which altogether gives the fascia a more or less "S"-shaped appearance. Marginal band of Fw. very broad with two white spots: one in apex and one between veins 3 and 4, usually of equal size.

Hw. stretched out, with a modified rumpled tornal area, similar as in *evergista*. Ground colour white, with a dark brown marginal band which is very variable: running from apex to vein 4, usually followed by a dark brown spot in the tornus and continued with brown fringes, or sometimes is even complete, running to tornus, only broken in patches at the fringes, but in extreme white coloured specimens the whole marginal band could be incomplete and fragmented with only dark brown patches of variable size. Wing base suffused with grey brown, more or less running distally over the veins. Tornal area and dorsum cream-coloured.

Wing characters of ♀: Lfw. 24–25 mm. Fw. with straighter dorsum compared to the ♂, but with rounded tornus and apex. Wing base orange-yellow. Dark brown more extended than in ♂, but with similar white pattern.

Hw. of normal shape. Ground colour white with wing base suffused with grey brown, which is running over two veins distally. Marginal band dark brown, complete from apex to tornus and very broad. Usually one small spot is present just below apex and sometimes a second (smaller) spot is present between veins 3 and 4. Fringed in tornus white.

Variability: As described above, the extension of the white pattern can vary. In some specimens this results in a smaller or broader white fascia on the Fw., but it is always indented by the two dark brown teeth as

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described above. A very constant feature is the divided basal patch, which together with the previous mentioned character are reliable distinctive characters of the species. The marginal band of the Hw. in the ♂ is most variable. It can either be complete or intensively broken up in dark patches. In the ♀ the marginal band seems rather uniform.

♂ genitalia: Uncus very similar to that of *evergista*, long and slender, finger shaped, top slightly bent down. Valva long, but not extremely elongate. Sacculus with long process curved to dorsal side. Process of sacculus finger-shaped, equally broad over full length, with short setae at ventral side. Cucullus with one club-shaped process with a few longer setae. Aedeagus short and relatively slender, compared to that of *evergista*, and distally at one side open. Coecum short with a narrower production. No cornuti.

♀ genitalia: Lamella antevaginalis similar to that of *evergista*, rather deeply excavated on both sides of ostium, without pockets. Ostium small funnel-shaped. Antrum short and slightly sclerotized. Cervix bursae not sclerotized. Bursa copulatrix with one long tongue-shaped signum, slightly sinuous.

Taxonomic remarks: The ♂ specimen from Ternate, described by Walker (1864) as "*mutabilis* var. γ" (labelled "Ter.[nate], Wallace", in OXUM), does not have type status.

Swinhoe (1892) revised *mutabilis* and discovered that the name *mutabilis* in fact hides two species. Walker (1864) described three specimens as "varieties" under this name: *mutabilis*, *mutabilis* var. β and *mutabilis* var. γ: The first two varieties belong to the species *evergista* Stoll, 1782 sensu stricto, and the third (*mutabilis* var. γ) was considered by Swinhoe (1892) to be another species, which specimen he designated as the "type" of *mutabilis*. Swinhoe was not correct by doing this because the name *mutabilis* was already clearly fixed to another specimen. The two "variations" of *mutabilis,* "var. β" and "var. γ", do not have any type status (this view is also independently supported by Jeremy D. Holloway, London, Rienk de Jong, Leiden, and Herman de Jong, Amsterdam). The first specimen of *mutabilis,* described without the prefix "var.", is the only specimen (and thereby holotype by monotypy) of Walker's true *mutabilis*.

Moreover, it is incomprehensible that Swinhoe (1903) later makes the confusion even worse by regarding *mutabilis* Swinhoe, 1892 to be a synonym of *aeres* de Boisduval, 1832, which in fact is a junior synonym of *evergista* (sensu stricto). Most authors seem to have overlooked the revision of Swinhoe (1892), since *mutabilis* is generally synonymized with *evergista* or *aeres*.

Another taxon which concerns *swinhoei* is *unita* Seitz, 1915, but this name has no official status, because it was originally used for an aberration of *evergista*. From the details mentioned by Seitz (1915) it most likely covers *swinhoei*, though he does not mention a locality. Possible "type material" of *unita* has not been traced.

Since there is no name available for this species, it was necessary to describe a new one.

There is a ♂ from Ternate in the BMNH collection, labelled with a red circle (type label) and "Ternate, o.k. 60 113", but this could not be the "type" of *mutabilis* that Swinhoe (1892) meant. Walker (1864) described three specimens at once, which all three are present in the OXUM collection. It is therefore not possible that the BMNH specimen, with different labels, is a type of *mutabilis*.

Nyctemera luzonica (Swinhoe, 1917)

Nyctemera luzonica luzonica (Swinhoe, 1917)

(Figs. 37–38, 47a–c, 54)

Deilemera mutabilis: Semper (1899: 492) (nec Walker, 1864) (in part).

Deilemera evergista: Pagenstecher (1901: 165) (nec Stoll, 1782) (in part).

Deilemera luzonica Swinhoe (1917: 335); Bryk (1937: 90).

Material examined: 27 specimens in BMNH, CCGT, CKC, CMWM, SMFL, ZFMK and ZMA.

Types:

luzonica: holotype (by monotypy) ♀, "Luzon, *Deilemera luzonica* ♀, Swinhoe type", BMNH.

Note: Swinhoe (1917) described the species *luzonica* from one ♀, labelled "Luzon". He did not suspect that this could be incorrect; however, the phenotype (which is very constant in this taxon) of this holotype specimen matches exactly that of the southern Philippines. It would be the first and only specimen with this appearance known from Luzon, which is very unlikely. Because of this and the fact that many specimens in that time were received from traders (who did not always carefully label their material), we can consider this specimen to originate from the southern part of the Philippines, probably Mindanao. Therefore, the name *luzonica* is misleading (see below).

Distribution: The subspecies *luzonica luzonica* is found in the southern part of the Philippine Archipelago. It is most common on Mindanao, but is also known from Bohol, Cebu, Leyte, Negros, Samar and Sibuyan. Though the name *luzonica* suggests otherwise, it does not occur on Luzon (see remark above). Specimens have been taken at altitudes from sea level up to 1450 m.

General characters: Head and thorax yolk-yellow with large black dots. Antennae black, bipectinate, in ♀ bipectination a little shorter. Abdomen yolk-yellow with broad black or black brown bands on each segment.

Wing characters of ♂: Lfw. 19–22 mm. Fw. of rather normal triangular shape, dorsum only slightly arched, tornus rounded and termen distinctly arched. Ground colour of Fw. white with black-brown pattern. Wing base yellow. Basal patch in base of cell as a short white streak.

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A small white spot below this streak between cubital vein and vein 1. Dorsum at wing base with thin white stripe. White fascia modified to more or less shoe-shaped patch with rather regular margins. In the middle of the cell a black-brown tooth points into the inner margin of the fascia. Fascia not reaching costa and dorsum, but at both sides separated by broad black brown border. Marginal band of Fw. broad with two more or less rounded white spots; one in apex and one between veins 3 and 4.

Hw. white with wing base suffused with grey brown, shortly running over some veins. Black brown marginal band complete, running from apex just above tornus, with one small white spot in apex between veins 6 and 7. Dorsum and tornus cream-white coloured, a little folded with longer fringes than termen. Cream-white fringes continued in tornus to vein 2, edging the dark marginal band.

Wing characters of ♀: Lfw. 21–22 mm. Wingshape as in ♂, but dorsum more straight. Wing pattern similar to that in ♂.

Hw. as in ♂, but without folded area in dorsum and tornus and without cream-white colour. Marginal band running further in tornal area than in ♂, but fringes in tornus still white.

Variability: The subspecies *luzonica* appears to be rather uniform, though some variations occur. The basal patch can be longer in some specimens. The black brown tooth in the cell can be shifted to the center of the wing, which makes the upper part of the white fascia narrower. This seems especially the case in specimens from Samar and Leyte, but from Leyte also an extremely whitened specimen is known (ZFMK). In this specimen the basal patch is connected to the broad white fascia, leaving a dark club-shaped stripe running over de cubital vein. The white spots in de marginal band are extremely large. The specimens from Negros also seem to have a more extended white wing pattern, while in the Hw. marginal band there are often two small irregularly shaped white spots. An extremely darkened specimen from Mindanao (BMNH) only shows a small white triangle on the Fw. as a remnant of the fascia, with only the small white basal patch visible and a small white spot near the costa, but no traces of marginal spots. However, in all cases the Fw. costa is broadly black bordered above the fascia as in the typical *luzonica*.

♂ genitalia: Uncus long worm-shaped, with rather blunt, down bent top. Valva compact, with a short process on sacculus. Sacculus with long setae, also on process. Cucullus swollen, like a belly, without process. Aedeagus short, rather slender and curved, without cornuti. Caudal part of aedeagus a little trumpet-like, at one side split open. Coecum rather long and thick.

♀ genitalia: Lamella antevaginalis with strong moon-shaped fold next to ostium. Ostium small funnel-shaped with long chitinous sinus vaginalis. Ductus bursae with broad chitinous colliculum (part of antrum). Cervix bursae slightly swollen and wrinkled. Bursa copulatrix short and without signum.

Nyctemera luzonica plesiastes (West, 1932)

(Figs. 39–40)

Deilemera mutabilis: Semper (1899: 492) (nec Walker, 1864) (in part).

Deilemera evergista: Pagenstecher (1901: 165) (nec Stoll, 1782) (in part).

Deilemera plesiastes West (1932: 207); Bryk (1937: 91).

Material examined: 54 specimens in BMNH, CAH, CCGT, CKC, CMWM and ZMA.

Types:

plesiastes: holotype (by original designation) ♀, "Baguio, subprov. Benguet, Luzon, 5000 ft., 30. x. 1913, A. E. Wileman, Wileman Coll. B.M. 1929-261, *Deilemera plesiastes* West, Holotype ♀", BMNH. Paratype ♀, "Baguio, subprov. Benguet, Luzon, 5000 ft., 1. iv. 1913, A. E. Wileman, Wileman Coll. B.M. 1929-261, *Deilemera plesiastes* West, Paratype ♀", BMNH.

Distribution: The subspecies *plesiastes* appears to be confined to North Luzon, where it is found in mountainous areas of the central provinces of Benguet, Ifugao, Mountain Province and Nueva Vizcaya, at altitudes from 500 to 2000 m.

General characters: Similar to *luzonica luzonica*, but the black dots smaller.

Wing characters of ♂: Lfw. 19–23 mm. Fw. white with dark brown wing pattern. Wing base yellow. White basal patch large and wedge-shaped, filling the basal part of the cell. A very small white spot below this patch between cubital vein and vein 1, sometimes connected with basal patch. White fascia large, more or less hook-shaped, indented by rounded dark brown patch below the cell, which is usually confluent with the dark brown antemedian fascia. White fascia almost reaching costa, only separated by a thin brown costal line. At dorsum broadly separated by dark brown border. Dorsum at wing base with narrow white stripe. Marginal band of Fw. with two more or less rounded spots; one in apex and one between veins 3 and 4.

Hw. white with narrow dark brown marginal band. Marginal band usually with two white spots; one in apex and one between veins 3 and 4. These spots are irregularly shaped and variable in size, sometimes almost reduced to a stripe, but often connected to the white wing centre by white veins, giving the marginal band a broken or fragmented appearance. Base of Hw. suffused with grey brown. Dorsum and tornus folded and pale cream-white. Marginal band just not reaching tornus.

Wing characters of ♀: ♀♀ usually with more reduced brown pattern than in ♂. White basal patch large, sometimes connected with the broad white fascia. White fascia only slightly indented in the cell by the

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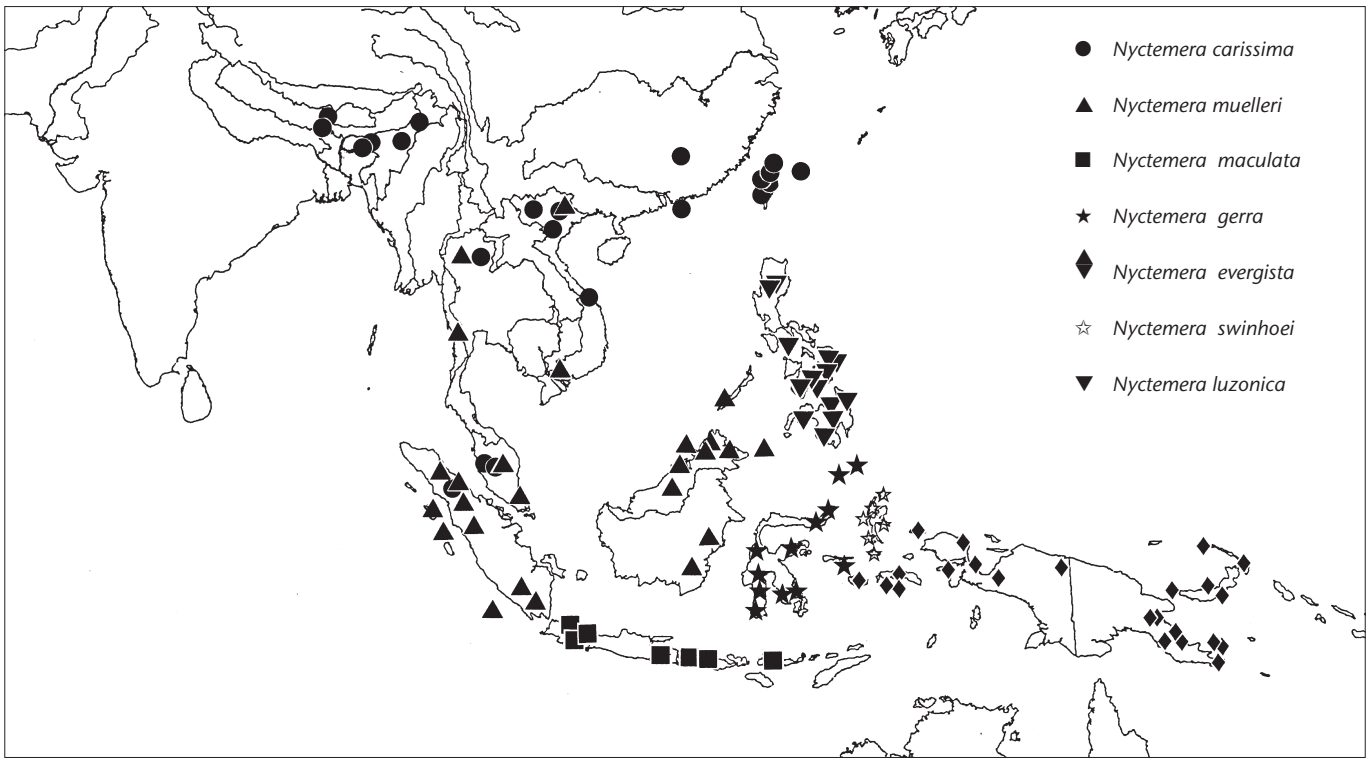

Map 1: Distribution patterns of the species of *Nyctemera (Deilemera)* in the Indo-Australian region.

dark brown antemedian fascia. Sometimes a tiny brown spot is present below the cell, which usually is confluent with the antemedian fascia. White spots in dark brown marginal band very variable in size. In some specimens there is only one spot present, between veins 3 and 4, but in extreme white specimens these two spots are very large and connected to the fascia with thin white lines along the veins.

Hw. as in ♂, but marginal band reaching tornus, leaving only white fringes in the tornal area. Dorsum and tornal area not folded and without cream-white colour, but white. As in ♂, the spots in the marginal band can be connected to the white wing centre.

Variability: There is some variation in extension of the dark brown and white pattern, especially of the two white spots in the marginal band of Fw. and Hw. However, the costa of the Fw. is never broadly bordered above the fascia, but always with a thin brown line.

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Appendix

Key to the species of the *Nyctemera evergista* group, external characters:

1. Hw. with modificated tornal area: either with a lobe or rumpled area, with hairs or creamy coloured [♂♂] . . . 2
– Hw. without such modifications [♀♀] 8
2. Hw. with distinct lobe in tornal area 3
– Hw. without distinct lobe in tornus, but with rumpled or hairy tornal area 4
3. Hw. more or less elongate, with distinct tornal lobe . . . . . *carissima*
– Hw. more or less round, with small tornal lobe . . . *gerra*
4. Tornal area of Hw. with hairs 5
– Tornal area of Hw. rumpled, no long hairs 6
5. Hw. tornal area rumpled with long cream-white or pale yellow hairs . . . . . *maculata*
– Hw. tornal area not or hardly rumpled with short cream-white hairs . . . . . *luzonica*
6. Hw. very rounded with large rumpled area . . . . *muelleri*
– Hw. elongate. Rumpled area restricted to tornal and dorsal edge 7
7. Fw. with basal patch divided into two longitudinal parts . . . . . *swinhoei*
– Fw. with basal patch not divided or without basal patch . . . . . *evergista*
8. Fw. with dark pattern very fragmented, usually with some isolated dark spots 9
– Fw. with dark pattern more regular, without isolated dark spots 11
9. Yellow abdomen with dark segmental bands dorsally widely interrupted . . . . . *carissima*
– Dark segmental bands not interrupted, sometimes constricted 10
10. Abdomen with dark segmental bands narrow (yellow colour broader than dark pattern). Both Fw. and Hw. very rounded _ . . . . . *muelleri* (ssp. *muelleri*)
– Abdomen with dark segmental bands broad (yellow colour narrower than dark pattern or equally broad) . . . . . *gerra* (f. *leuctra,* f. *extrema*)
11. Fw. dark, with reduced white ground colour. Hw. with blackish suffusion between base and marginal band 12
– Fw. with white and dark pattern. White fascia on Fw. more or less well developed. Hw. between base and marginal band mostly white 14
12. Fw. with divided white basal patch. White fascia reduced and irregular shaped, often with white marginal spots. Hw. with area between base and marginal band irregularly suffused with greyish black . . . . . *gerra* (dark forms)
– Fw. without basal patch. Blackish suffusion on Hw. usually in basal half 13
13. Basal half of Hw. suffused with grey-black. Fw. with only a small remnant of white fascia and sometimes with white marginal spots. Abdominal dark bands very broad, leaving hardly any yellow . . . . . *muelleri* (ssp. *mentawaiensis*)
– Fw. with white fascia reduced to rectangular costal patch. No marginal white spots present . . . *evergista* (ssp. *uniplaga*)
14. Fw. very rounded and with reduced white fascia, but with white marginal spots. Basal patch broad, almost square-shaped . . . . . *muelleri* (ssp. *eddela*)
– Not with this combination of characters 15
15. Specimens rather small. Fw. with broad triangular shaped white fascia. Basal patch divided into larger longitudinal upper part and small white spot as lower part . . . . *luzonica*
– Specimens rather large or of medium size. Fascia and basal patch of different shape or absent 16
16. Fw. without marginal white spots, with or without basal patch 17
– Fw. with marginal white spots and always with basal patch 18
17. Fw. with large basal patch, sometimes confluent with fascia. Fws more or less elongate . . . . . *evergista* (ssp. *uniplaga,* mountain form)
– Fw. with basal patch of one or two longitudinal parts or basal patch absent. Fascia oblique and regular shaped, if reduced not touching costa . . . . . *maculata*
18. Basal patch not distinctly divided into two parts . *evergista*
– Basal patch distinctly divided into two parts 19
19. Fw. with oblique, regular shaped fascia. Basal patch divided into two longitudinal parts. Hw. with rather narrow hindmargin . . . . . *maculata* (ssp. *variamacula*)
– Fw. with irregular shaped fascia. Basal patch divided into two short longitudinal parts. Hw. with broad hindmargin . . . . . *swinhoei*

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Corrigenda

Zu: K. G. Schurian (2002): **Nekrolog Hans Seipel, * 11. Juni 1922, † 15. Mai 2001.** — Nachrichten des Entomologischen Vereins Apollo, Frankfurt am Main, N.F. **22** (4): 206.

Durch einen redaktionsinternen Übertragungsfehler ist leider in der Publikationsliste eine der Veröffentlichungen unseres verstorbenen Mitglieds Hans Seipel nicht mit abgedruckt worden. Die folgende Arbeit gehört noch zum Publikationsverzeichnis dazu:

Zub, P., Kristal, P. M., & Seipel, H. (1997 [„1996"]): Rote Liste der Widderchen (Lepidoptera: Zygaenidae) Hessens (Erste Fassung, Stand 1. 10. 1995). Zusammengestellt im Auftrag des Hessischen Ministeriums des Innern und für Landwirtschaft, Forsten und Naturschutz im Namen der Arbeitsgemeinschaft Hessischer Lepidopterologen (Arge HeLep). — Natur in Hessen (Hrsg. Hessisches Ministerium des Innern und für Landwirtschaft, Forsten und Naturschutz), Wiesbaden, 28 S. [Eingedrucktes Erscheinungsdatum: „September 1996", die Exemplare wurden aber erst nach den Kommunalwahlen Anfang 1997 ausgeliefert; uns sind keine Exemplare außerhalb des Ministeriums bekannt, die tatsächlich schon 1996 ausgeliefert wurden.]

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